

# ENVIRONMENTAL ASSESSMENT BOARD



## ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARINGS

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VOLUME: 70

DATE: Monday, October 7, 1991

BEFORE:

HON. MR. JUSTICE E. SAUNDERS	Chairman
DR. G. CONNELL	Member
MS. G. PATTERSON	Member

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1 ---Upon commencing at 10:03 a.m.

2 THE REGISTRAR: Please come to order.

3 This hearing is now in session. Be seated, please.

4 THE CHAIRMAN: Mr. Campbell, you were  
5 going to produce some new diagram or table or chart or  
6 something of that nature?

7 MR. B. CAMPBELL: I understand that an  
8 initial cut has been prepared. I haven't seen them  
9 yet, Mr. Chairman. We hope to do it sometime in the  
10 first half of this week, but it's not done yet.

11 THE CHAIRMAN: Thank you. Mr. Shepherd?

12 MR. SHEPHERD: Good morning, Mr.  
13 Chairman.

14 I would like to get two things out of the  
15 way. I promised on Thursday that I would file our  
16 overheads, Exhibit 326. I have now provided the Clerk  
17 with copies, and Hydro, and there are copies available  
18 for the other Intervenors, and it is here.

19 THE CHAIRMAN: Thank you. Could we just  
20 have those now then, please? 326?

21 THE REGISTRAR: I put it up there.

22 THE CHAIRMAN: Oh, is it up here?

23 THE REGISTRAR: Yes, it's marked. It's  
24 underneath here.

25 THE CHAIRMAN: Oh, thank you very much.

1                   MR. SHEPHERD: Mr. Chairman, I would like  
2                   to file a second exhibit, which I understand from the  
3                   Clerk will be Exhibit 328, and this is a response by  
4                   Ontario Hydro to an informal information request from  
5                   IPPSO to restate the February system incremental costs  
6                   for project appraisal in the same format as the August  
7                   ones.

8                   So we now have that. It's Exhibit 328  
9                   which I am just filing, which puts the February, 1991  
10                  system incremental costs in the same format directly  
11                  comparable to the August system incremental costs.

12                 DR. CONNELL: Perhaps we should attach  
13                  the two relevant exhibit numbers to correlate them.  
14                  309?

15                 THE CHAIRMAN: 309, yes. 309?

16                 MR. SHEPHERD: That's right. And the  
17                  February were originally...?

18                 MR. WATSON: 175.

19                 MR. SHEPHERD: 175.

20                 ---EXHIBIT NO. 328: A response by Ontario Hydro to an  
21                                 informal information request from IPPSO  
22                                 to restate the February system  
23                                 incremental costs for project appraisal  
24                                 in the same format as the August  
25                                 incremental costs, originally Exhibit 175  
                                and Exhibit 309 being an additional  
                                relevant exhibit.

25                 MR. SHEPHERD: Go ahead.



1                   MR. B. CAMPBELL: I should also have  
2 mentioned while was on my feet, Mr. Chairman, that  
3 there is an undertaking, No. 322.5, that Mr. Snelson  
4 promised to try and give the reference for this  
5 morning.

6                   I think the question was, where the  
7 information concerning an early, I think the first,  
8 expectation by Ontario Hydro with respect to NUGs. It  
9 was mid-'80s, I think, and it can be found in Exhibit  
10 57 as pointed out in the answer to the transcript  
11 undertaking.

12                  And that has been distributed this  
13 morning.

14                 THE CHAIRMAN: Yes, I have that.

15                 MR. SHEPHERD: Mr. Chairman, just to  
16 remind the Board, in the outline of our cross-  
17 examination, which is Exhibit 323, we are just  
18 completing 4B, which is the forecast for cogeneration.

19                 I should tell you that we did a further  
20 analysis yesterday of where we are in timing, and we  
21 are indeed right on schedule to end tomorrow at the end  
22 of the day.

23                 THE CHAIRMAN: Thank you.

24                 KEITH DOUGLAS BROWN,  
25                 PAUL FRANK VYROSTKO,  
                  JOHN KENNETH SNELSON; Resumed.

1        CROSS-EXAMINATION BY MR. SHEPHERD (cont'd):

2                    Q.   I guess this is you, Mr. Brown.

3                    We were just talking about industrial  
4       cogeneration on Thursday afternoon, and just before we  
5       go to the other cogeneration sectors we have heard that  
6       you have 10 projects totalling 1,200 megawatts that are  
7       in excess of your expectations that are being committed  
8       by the end of year; is that right?

9                    MR. BROWN:   A.   If you are referring to  
10      the president's speech at the IPPSO conference, it was  
11      10 projects.   1,200 megawatts are expected to be signed  
12      by year end.

13                   Q.   Okay.   That does seem like a high  
14      average size, 120 megawatts.   Does that size surprise  
15      you, the average?

16                   MR. VYROSTKO:   A.   Perhaps I can help in  
17      that answer, Mr. Shepherd.

18                   Q.   Yes, go ahead.

19                   A.   If we go back to the request for  
20      proposal that we received, if I recall the numbers  
21      there were 39 proposals amounting to something like  
22      6,500 megawatts.   I think that average at that time was  
23      about 150 megawatts per project, and so I think the  
24      results to date are in that order.

25                   THE CHAIRMAN:   Would that proposal

1 include the 350 megawatt --

2 MR. VYROSTKO: The request for proposal?

3 THE CHAIRMAN: No, no. The 10 projects  
4 totalling 1,200, would that include the 350 megawatts  
5 major supply NUGs?

6 MR. VYROSTKO: Yes, it does.

7 THE CHAIRMAN: So, nine projects would  
8 average still 850?

9 MR. VYROSTKO: Yes, that's correct.

10 MR. SHEPHERD: Q. Is it fair to say that  
11 these projects, these 10 projects, are being proposed  
12 to you by experienced, well financed developers, ones  
13 who have done this before?

14 MR. VYROSTKO: A. Yes.

15 Q. It is generally in your interest to  
16 deal with companies that know what they are doing,  
17 isn't it?

18 A. I think the experience we have had to  
19 date, it covers the entire range of developers, both  
20 people who are doing projects for the first time as  
21 well as people who have done projects before, and I  
22 think that in terms of the information that's received  
23 at the front end, people that have done projects before  
24 have a better understanding of what's required, so from  
25 that perspective there is an advantage in dealing with

1 people that have experience.

2 Q. Of the 10 projects we have just  
3 talked about, how many are proposed by Canadian-owned  
4 developers?

5 A. I think seven would be by Canadian  
6 developers.

7 Q. Seven out of the 10?

8 A. Yes.

9 Q. And of those seven are any of them  
10 not utilities?

11 THE CHAIRMAN: Perhaps you had better  
12 define what you mean by "utilities".

13 MR. SHEPHERD: Q. When I say "utility" I  
14 mean electric utility, gas utility, regulated utility  
15 or gas pipeline utility.

16 MR. VYROSTKO: A. The majority of those  
17 are utilities.

18 Q. Can you tell us how many of the seven  
19 are utilities?

20 A. My rough number says five of the  
21 seven.

22 Q. Five of the seven?

23 A. (Nodding).

24 Q. Now, do I understand correctly you  
25 are neutral on the question of who owns the proposed



1 project; as long as they know what they're doing, you  
2 don't care who it is?

3 A. That's correct.

4 Q. Let's move to institutional,  
5 commercial and residential cogeneration.

6 We have dealt with most of this before,  
7 Mr. Brown, earlier on. Your current projection is that  
8 you will have 85 megawatts of cogen from this sector by  
9 the year 2000; correct?

10 MR. BROWN: A. That's what's in the NUG  
11 plan, yes.

12 Q. That's also what you have told us in  
13 your supplementary witness statement is going to be in  
14 the new NUG plan; right?

15 A. I haven't done the 1991 NUG plan yet.  
16 We haven't spent a lot of time in this sector, but we  
17 don't expect a big change.

18 Q. I guess we determined on Wednesday or  
19 Thursday that of that 85 megawatts, 68 megawatts is one  
20 project that is currently committed at Ottawa Health  
21 Sciences Centre; correct?

22 A. That's correct.

23 Q. And you have a couple of small ones,  
24 Westbrook Greenhouses and Etobicoke Olympian as well?

25 A. They add up to about a megawatt

1 total.

2 Q. So you have about 16 megawatts left  
3 which is the total of all cogeneration that you will  
4 expect to get from this sector in the next nine years;  
5 correct?

6 A. Yes.

7 Q. And that's because cogeneration in  
8 this sector is uneconomic?

9 A. Yes, that's true.

10 Q. And the reason for that is low steam  
11 capacity factors?

12 [10:15 a.m.]

13 A. That's true. That's one of the  
14 reasons.

15 Q. Okay. You have done spreadsheets to  
16 show this?

17 A. No, our analysis is based on project  
18 proposals that we have received, and possibly  
19 spreadsheets on those.

20 Q. Not done by Hydro though, done by  
21 developers?

22 A. At times we have done certain  
23 projects to help the proponent design his project.  
24 It's the same spreadsheet that we have in the NUG plan.

25 Q. We asked you earlier about what

1       spreadsheets you have done to analyze the economics of  
2       projects, you didn't mention those, I don't think.

3                   A.   No, these are used in contract  
4       negotiation.

5                   Q.   So they are specific, confidential to  
6       the particular project?

7                   A.   That's true.

8                   Q.   You haven't attempted to generalize,  
9       you haven't done any reports or studies to generalize  
10      from those project specific proposals; have you?

11                  A.   Our forecast is based on the project  
12      specific information.

13                  Q.   Okay.  So you haven't actually sat  
14      down and done a disciplined analysis of project  
15      economics in the cogen sector, in this area of cogen,  
16      have you?

17                  A.   Well, we based our analysis on what  
18      the industrial sector is doing, looking at the  
19      parameters on that that are different than the  
20      commercial sector.  We looked at what is happening in  
21      the United States and we based it on the amount of  
22      proposals we are seeing today.

23                  Q.   Is there a summary or a report or a  
24      study of some sort that brings all that investigation  
25      together?

1 A. No, there isn't.

2 Q. Let's go to gas compressors, this is  
3 the last area of cogeneration. We dealt with this a  
4 bit earlier. Your projection of capacity has gone from  
5 100 megawatts to 340 megawatts; correct?

6 A. That's correct.

7 Q. And that's because TransCanada  
8 PipeLines, the main developer, have proposed more  
9 projects that you expected?

10 A. The size of projects has increased  
11 from this type of technology.

12 Q. Okay. And just looking at page 4 of  
13 Exhibit 326 for a second, which is on the overhead. We  
14 have estimated that your new technical potential is 540  
15 because of that increase. Didn't I hear you say the  
16 other day that your new technical potential is actually  
17 higher?

18 A. It will be higher than this, yes.

19 Q. Do you know what it is?

20 A. It's around 7 to 900, I'm not sure.

21 Q. Now, that would include ones that are  
22 not matched to the none-electric load?

23 A. That number was developed before we  
24 started looking at these new qualifications.

25 Q. So, is it fair to say then that your

1 new technical potential will actually be lower than the  
2 540 because you will take out the major supply NUG  
3 portion?

4 A. I'm not sure about the 540. You have  
5 to include those that are already committed and you  
6 will be adding those in the future that have the high  
7 efficiency, without the major supply. Now the total  
8 number I am not sure.

9 Q. The high efficiency is the 300;  
10 right?

11 A. Yes.

12 Q. And then the additional 240 is from  
13 projects that are larger than you expected. They are  
14 going away from high efficiency; right?

15 A. That's correct.

16 Q. So, you can't add any more than the  
17 540 because that would all be major supply NUGs;  
18 wouldn't it?

19 A. When we did the first one, we are  
20 always refining our list of technical potential. Now,  
21 there are a few sites in other areas of the province  
22 that we have missed, we will be adding those in. The  
23 intent is to add all high efficiency from now on.

24 Q. But the 7 to 900 technical potential  
25 you just mentioned, that would have included a whole



1 bunch of major supply NUG component; right?

2 A. That's correct.

3 Q. And you are not going today that?

4 A. That's right.

5 Q. So you are not going to use that  
6 number then.

7 A. Not in '91 plan.

8 Q. No, okay.

9 Let's go then to your forecast for other  
10 thermal. I hopefully will be able to run through these  
11 numbers a little more quickly than cogeneration.

12 First let's deal with municipal solid  
13 waste. This is the burning of municipal garbage;  
14 right?

15 A. In the 1990 NUG plan, MSW included  
16 incineration and landfill gas.

17 Q. Landfill gas, that's right. And in  
18 your 1990 NUG plan you had 240 megawatts of technical  
19 potential and 116 megawatts of achievable potential.  
20 But I understand that you have now increased the  
21 technical potential to 330 megawatts?

22 A. The original estimate was based, I  
23 believe, on 1986 municipal solid waste information and  
24 we have not got a study, I believe it's '88 or '89,  
25 that shows a lot more waste.



1 Q. Okay. Just as a matter of curiosity,  
2 you said in your supplementary witness statement that  
3 you have now done a preliminary resource assessment.  
4 Is that a document that's been filed in these hearings?

5 A. Our document is the 1991 NUG plan.  
6 So, we are working towards that document and the  
7 information that's in the witness statement is our  
8 preliminary calculation. We haven't even done the 1991  
9 NUG plant yet.

10 Q. So when you say a preliminary  
11 resource assessment, that doesn't mean a piece of  
12 paper?

13 A. No.

14 Q. It is just, what did you do, call up  
15 a few people and asked them? What did you do? I don't  
16 understand.

17 A. In terms of MSW all we have found is  
18 that there is more garbage.

19 Q. Okay. The 1990 NUG plant wasn't even  
20 based on a preliminary resource assessment; right? You  
21 didn't even have that to work with?

22 A. We had the '86 information and  
23 landfill gas project specific information.

24 Q. Okay.

25 Now, just clear up something for me on

1       achievable potential for MSW. The supplementary  
2       witness statement said that achievable potential was  
3       going down by 50 megawatts which led us to put 56 on  
4       this chart, but I heard you say the other day that your  
5       achievable potential is 50; is that right?

6                   A. It's supposed to decrease by 60 from  
7       116.

8                   Q. Sorry, 60. So, the 56 number we have  
9       used is correct then?

10                  A. As a preliminary estimate, yes.

11                  Q. Okay. I didn't us to have a little  
12       error there that I couldn't clarify.

13                  If you take a look at the 1990 NUG plan,  
14       just for a second, and that's Exhibit 83, you take a  
15       look at page 7, it talks about achievable potential for  
16       municipal solid waste. Do I understand correctly that  
17       you took the technical potential of 240 megawatts, you  
18       deducted the in-service and committed, 33 megawatts, to  
19       get 207 megawatts, and then assumed that you would get  
20       that 207 megawatts at the rate of 4 per cent a year; is  
21       that right?

22                  A. The 2 per cent was based on past  
23       growth.

24                  Q. I didn't ask you that yet. I am  
25       getting there.

1                   You had the 240 megawatts of technical  
2     potential?

3                   A. Right.

4                   Q. You had 33 megawatts of in-service  
5     and committed?

6                   A. Correct.

7                   Q. So you had 207 left; right?

8                   A. Correct.

9                   Q. You then said, we will assume we are  
10    going to get at that 4 per cent a year; correct?

11                  A. That's correct.

12                  Q. And you got the 4 per cent, maybe  
13    could you tell us how you got the 4 per cent?

14                  A. 4 per cent is assuming that the rate  
15    of implementation will double than it has over the last  
16    eight years.

17                  Q. Okay. But looking at the past  
18    project activity, you took three projects, 4 megawatts  
19    in 1982, 6 megawatts in 1985, and 21 megawatts in 1990,  
20    and you said that that is a 2 per cent per year trend;  
21    is that what you concluded?

22                  A. It also includes Victoria Hospital, 6  
23    megawatts, which is 1982.

24    [10:25 a.m.]

25                  Q. Sorry, the 6 megawatts was in '82,

1       sorry. Okay. But you concluded that that was a trend  
2       of 2 per cent a year?

3               A. That's what has occurred in Ontario  
4       to date.

5               Q. Okay. Is it correct forecasting to  
6       use numbers like that to get a trend, to extrapolate  
7       into the future?

8               A. In Ontario that's the best available  
9       information.

10              Q. Sorry?

11              A. In Ontario that is the best available  
12      information on this technology.

13              Q. I'm not asking whether your  
14      information was valid, of course it was valid, it was  
15      hard information. What I'm asking you is, is it  
16      correct to take that sort of information and forecast  
17      into the future using trend analysis?

18              A. That's one way to forecast.

19              Q. So that is appropriate statistically  
20      valid forecasting; is that correct?

21              A. There will be uncertainties depending  
22      on how many years of data you have behind you.

23              Q. Okay. Now, your new forecast  
24      represents only 50 megawatts, that's 17 megawatts more  
25      than you had committed in 1990. Do I understand

1 correctly that 8 megawatts of your 1990 number has  
2 dropped off?

3 A. The new number is based on no more  
4 incineration projects by the year 2000. So in-service,  
5 plus committed, plus some landfill gas development.

6 Q. Okay. You had 8 megawatts in Peel  
7 committed?

8 A. Yes.

9 Q. That's not in any more; is it?

10 A. Yes.

11 Q. Well, wasn't there an announcement by  
12 the Minister of the Environment that that project would  
13 be stopped?

14 A. No.

15 Q. Okay. So that is in then?

16 A. Yes.

17 Q. And you have the 21 megawatts at  
18 Pickering, the landfill gas project?

19 A. That's correct.

20 Q. You're counting that as 21 megawatts?

21 A. It will vary over the life of the  
22 project. I believe the turbine might be rated for 25,  
23 the landfill gas component is somewhere less than 20,  
24 we're using 21.

25 Q. Okay. So that's 21 and 8 and 4. At



1 SWARU; right, the project in Hamilton?

2 A. Yes.

3 Q. So that's 33, and then you have 12  
4 megawatts at Keele Valley; is that in there?

5 A. That's not committed.

6 Q. So that's not in there yet. So  
7 you're assuming that you're not going to get that by  
8 the year 2000?

9 A. There's a ban on incineration.

10 Q. Well, no, Keele Valley is landfill  
11 gas?

12 A. The preliminary analysis is we'll get  
13 double what we already have. In the 1990 NUG plan,  
14 that's what you're referring to--

15 Q. Yes.

16 A. --we just used the 4 per cent growth  
17 rate. We weren't specific whether it was landfill gas  
18 or incineration.

19 Q. Yes, but we're talking about your 56  
20 megawatt number now?

21 A. That's a preliminary estimate.

22 Q. What I'm trying to get at is, that  
23 you already have projects that are approved and going  
24 ahead totalling that much; don't you?

25 A. No.



1 Q. Well, we've identified 33; right?

2 A. Correct.

3 Q. Keele Valley is 12 megawatts; isn't  
4 it?

5 A. It's a proposal.

6 Q. Well, but, isn't it a proposal where  
7 the City of Toronto has already let the tender to a  
8 company to do it?

9 A. It's still under negotiation at this  
10 time with us and the City of Toronto.

11 Q. And you have got 7 megawatts at Bear  
12 Road; isn't that right, landfill gas?

13 A. I'm not sure of the potential of that  
14 site.

15 Q. Okay. But those two projects alone  
16 you're up to your 56; right, or roughly?

17 A. It's possible.

18 Q. Well, you're not assuming any  
19 additional projects after those?

20 A. All the preliminary estimate that was  
21 in the witness statement was, we just assumed that  
22 landfill gas would continue to be developed and that we  
23 are right now looking at how much will that be, and as  
24 a preliminary estimate we just said it will be double  
25 what we already have.

1 Q. Yes, but then you backed off that;  
2 right. Your new projection has dropped off 60  
3 megawatts so you're not using the 4 per cent a year at  
4 all any more; are you?

5 A. No, because that included  
6 incineration.

7 Q. Okay. Is it correct that the  
8 Ministry of the Environment has announced that projects  
9 burning garbage, incineration, will at least for now  
10 not be allowed in Ontario?

11 A. That was announced, yes.

12 Q. Have you had any discussions with the  
13 government about the burning of garbage and its  
14 environmental implications?

15 Mr. Vyrostko, maybe this is for you.

16 MR. VYROSTKO: A. We have discussed  
17 that.

18 Q. You've heard the argument, I suppose,  
19 that well-designed MSW facilities are actually the most  
20 environmentally benign NUG technology because they  
21 displace serious landfill problems. You've heard that  
22 argument?

23 A. No, not to that extent. I have heard  
24 that some well designed municipal solid waste projects  
25 are, in fact, a good application of that type of fuel

1 and producing electricity, but to say that they're the  
2 best sort of thing, no I don't...

3 Q. Do you agree with the principle that  
4 MSW can be an environmentally very attractive project?

5 A. I believe that municipal solid waste  
6 as well designed can be one of the solutions to the  
7 garbage problem.

8 Q. I take it then that you disagree with  
9 the government's ban on municipal solid waste  
10 incineration?

11 MR. B. CAMPBELL: Well, whether he agrees  
12 with the ban -- I'm not sure Mr. Chairman, that it's  
13 quite fair to say that the ban is capable of being  
14 agreed or disagreed with, it's there.

15 As to the rationale for it, I think Mr.  
16 Vyrostk can speak, as he has, to whether the projects  
17 can comply with environmental regulations and offer  
18 environmental advantages and disadvantages.

19 I think that's perfectly fair, but I  
20 don't see how he can be asked to agree or disagree with  
21 the ban. The ban is there and it's not Ontario  
22 Hydro's.

23 MR. SHEPHERD: Fine. Frankly, Mr.  
24 Chairman, I don't --

25 THE CHAIRMAN: Whether he agrees or not

1 doesn't really make a great deal of difference, so I  
2 don't think he needs to be asked.

3 I mean, you can certainly pursue  
4 discussing the viability of the process, I'm not  
5 cutting you off there, but whether he disagrees or not  
6 with a particular piece of government legislation, I  
7 don't know whether it makes any difference one way or  
8 the other.

9 MR. SHEPHERD: Where I'm going, Mr.  
10 Chairman, is the question of whether Hydro's efforts in  
11 some areas of independent power technology are limited  
12 by government actions.

13 THE CHAIRMAN: You certainly can ask him  
14 about that.

15 MR. SHEPHERD: Q. Is this an example,  
16 Mr. Vyrostkco -- no, maybe I better put this a different  
17 way. Is the ban on municipal solid waste incineration  
18 for electrical production, is it fair to say that that  
19 limits what you can do in that area of NUG technology?

20 MR. VYROSTKO: A. It does limit the  
21 availability of production of electricity out of  
22 municipal solid waste.

23 Q. And we have seen a 60 megawatt drop  
24 in your projection because of that?

25 A. As Mr. Brown said, that's correct.

1 Q. In fact, since your technical  
2 potential has increased, I assume that it is actually  
3 more than a 60 megawatt drop if you're assuming your 4  
4 per cent a year; isn't that correct, Mr. Brown?

5 MR. BROWN: A. That was based on '88 or  
6 '89 information, the number is higher. What we're not  
7 accounting for is the increase in recycling which is  
8 happening right now.

9 Based on the '89 information, the  
10 technical potential is higher.

11 Q. Which would mean, using your  
12 methodology, your achievable potential should be  
13 higher; correct?

14 A. That's also correct.

15 Q. All right. Now, in your forecast  
16 you've not assumed any removal or softening of the  
17 government's ban on municipal solid waste; have you,  
18 between now and the year 2000?

19 A. In which number?

20 Q. Well, in your achievable potential,  
21 didn't you say in your achievable potential you've  
22 assumed no more incineration?

23 A. To the year 2000.

24 Q. So that assumes that the government's  
25 ban will remain in place until the year 2000?



1                   A. Well, we're hoping recycling will  
2           continue that, but if it doesn't work, it may happen in  
3           the future. What we're saying is it's going to be at  
4           least ten years before we see one of these facilities.

5                   Q. Okay. I note you're talking about  
6           landfill gas. Your plan doesn't contain any numbers  
7           for sewage gas, digester gas or other biogas sources  
8           of generation; does it?

9                   A. No, it doesn't.

10                  Q. Why is that?

11                  A. Right now it's a small technology. I  
12           want to have a closer look at it in future NUG plans.  
13           It just hasn't been included to date.

14                  Q. That includes agricultural gases,  
15           burning of agricultural methanes. That's something you  
16           haven't looked at yet; right?

17                  A. Well, there is one project in our  
18           database.

19                  Q. There is?

20                  A. Yes.

21                  Q. It is a proposal?

22                  A. No, it's in-service.

23                  Q. It's in-service. But aside from  
24           that, you've included nothing in your projections for  
25           that?



1 A. That's correct.

2 Q. Okay. Let's turn to wood waste then.

3 Just moving along real fast here.

4 If we can take a look at page 3 of  
5 Exhibit 83 which is the 1990 NUG plan, and we talked  
6 about this earlier, I guess.

7 You've now, starting in 1990, you've  
8 included in wood waste the natural gas component of  
9 combined gas wood projects, correct?

10 A. That's right.

11 [10:35 a.m.]

12 Q. And actually 83 per cent of your  
13 number - that is, five parts out of six - is gas rather  
14 than wood. We talked about that on Thursday; right?

15 A. That's also correct.

16 Q. So, if we want to treat this  
17 analytically, we should treat this category as being  
18 basically natural gas generation; correct?

19 A. In the numbers in the 1990 plan it is  
20 mostly natural gas.

21 Q. You have got the 5:1 ratio from an  
22 analysis of the ratios in the projects you had seen in  
23 Ontario; is that right?

24 A. Yes.

25 Q. How many projects is that that you

1 took that analysis from?

2 A. It was around 10.

3 Q. Now, I am just looking at how you got  
4 your 110 megawatts of technical potential for the wood  
5 waste side, and it seems to me -- and I am not going to  
6 go through it all in detail right here. It seems to me  
7 you have got a lot of assumptions there that you  
8 haven't done any research on; is that right?

9 A. We tried to divide the wood waste up  
10 on where -- on the collectibility of those products,  
11 something like the 2x4s in the residential market are  
12 very hard to use to produce electricity, whereas  
13 something being produced at a pulp and paper mill,  
14 which also would be interested in cogeneration, could  
15 use the steam, would have a higher success of using the  
16 wood waste.

17 Q. I understand the reasoning. I guess  
18 what I am asking is: Where you make these various  
19 assumptions - 80 is logging residues; 25 per cent are  
20 collectible; 100 per cent is then available - you  
21 didn't actually do any research on those things; right?

22 A. Not yet.

23 Q. So you just used your professional  
24 judgment and guessed?

25 A. We "estimated" using our professional

1 judgment.

2 Q. Do you have somebody in your  
3 department who is familiar with the logging industry?

4 A. We work with those people all the  
5 time, so...

6 Q. Are you planning to do some more  
7 rigorous work on wood waste to see whether you can get  
8 some harder numbers?

9 A. For the '91 NUG plan we have a newer  
10 resource assessment which estimates the amount of wood  
11 in Ontario. That will be used to help us determine the  
12 technical potential.

13 Q. Now, is this like the MSW resource  
14 assessment; it's not a piece of paper? Or is this a  
15 real live document.

16 A. This is a Government of Ontario  
17 resource assessment.

18 Q. So it is a real live document?  
19 Somebody actually went out and did a study?

20 A. For the Government of Ontario, yes.

21 Q. And you have that now?

22 A. We are using that to determine the  
23 1991 plan.

24 MR. SHEPHERD: Is it appropriate for me  
25 to ask these witnesses to table that, or do I have to

1 ask the Government?

2 THE CHAIRMAN: What is it? Perhaps we  
3 can find out what it is.

4 MR. BROWN: It is a survey of wood waste  
5 in Ontario that was done for the Ministry of  
6 Environment, I believe.

7 THE CHAIRMAN: Was it published?

8 MR. BROWN: Yes.

9 MR. B. CAMPBELL: Unless there is  
10 something very unusual, we will be happy to undertake  
11 to provide that.

12 THE REGISTRAR: That will be 322.11, Mr.  
13 Chairman.

14 ---UNDERTAKING NO. 322.11: Ontario Hydro undertakes to  
15 provide the Ontario Ministry of  
Environment survey of wood waste.

16 MR. SHEPHERD: Q. If you then go to page  
17 8 of Exhibit 83 where it says "Wood Waste Achievable  
18 Potential", is it fair to say that for the achievable  
19 potential of wood waste production you have attempted  
20 to extrapolate trends from a very small base of  
21 existing information?

22 MR. BROWN: A. It's based on the wood  
23 waste facilities that have gone in-service in Ontario.

24 Q. And that's only three?

25 A. Three over a period of five years.

1 Q. So you have used that to create a  
2 trend which you have then extrapolated; correct?

3 A. That's right.

4 Q. Then you took the 5:1 ratio that you  
5 got from looking at all in-service, committed and  
6 proposed projects' ratio of gas to wood and you took  
7 that and multiplied it by the trend that you had worked  
8 out; right?

9 A. That's right.

10 Q. And this will all be unchanged in the  
11 1991 NUG plan?

12 A. As I mentioned, we will not be  
13 looking at the use of natural gas and wood waste  
14 together.

15 THE CHAIRMAN: I'm sorry, I didn't quite  
16 hear that.

17 MR. BROWN: The combination of natural  
18 gas and wood waste will not be forecasted for the  
19 future. It will be just wood waste now.

20 MR. SHEPHERD: Q. So are you going to  
21 take the natural gas component out and call that a  
22 major supply NUG, or do you just mean for future  
23 projects you are not going to consider these  
24 combination projects?

25 MR. BROWN: A. Those that are going to



1 be committed will be included, but the forecast of  
2 uncommitted projects were based on wood waste  
3 technology only.

4 Q. So the number we will see will still  
5 be largely natural gas; right?

6 A. Just those that are committed.

7 Q. Which is what, about 180 now?

8 A. Yes. The reason I didn't change the  
9 preliminary estimate, because we have some of these  
10 that are already committed in there, and the remainder  
11 will be just wood waste.

12 Q. Okay. All right.

13 THE CHAIRMAN: So the only thing that  
14 will be forecast will be the wood waste technology  
15 only, and if it is gas and wood combined it will be  
16 included in the forecast only if, as and when  
17 committed; is that right?

18 MR. BROWN: That's right.

19 MR. SHEPHERD: Q. But it will still be  
20 included under wood waste?

21 MR. BROWN: A. If it is burning wood  
22 waste, yes.

23 Q. No matter what its ratio of gas to  
24 wood waste?

25 A. Yes.



1                   Q. So when we get that we will have --  
2 will you be providing us with some sort of information  
3 that allows us to exclude the conventional fossil  
4 generation from the wood waste component in that  
5 category?

6                   A. When we do our resource assessment we  
7 will have to, if we are not provided the information,  
8 estimate how much wood waste is being removed from the  
9 technical potential so we can see what is left.

10                  I don't know if it will be provided in  
11 the NUG plan, but it is definitely an analysis that has  
12 to be done to estimate the future wood waste.

13                  Q. Just out of curiosity, in the new NUG  
14 plan will we also be able to -- when we read your  
15 industrial cogeneration number, will we be able to  
16 determine the portion of that that's real high  
17 efficiency, like real cogeneration, and the portion of  
18 that that is essentially major supply NUGs?

19                  A. No, you won't.

20                  Q. Okay. I am going to skip turbo  
21 expanders because they're so small and I have never  
22 seen one, and I want to go right to what you called in  
23 the 1990 NUG plan "conventional fossil" and you are now  
24 calling "major supply NUGs". It's actually a component  
25 of major supply NUGs; correct?

1 A. In the area of the NUG plan this was  
2 pure, natural gas burning NUG.

3 Q. Okay. Now, you actually included in  
4 this category last year gas CTUs, residual oil, coal,  
5 and combined cycle; correct?

6 A. Yes, because there are a few of those  
7 in-service.

8 Q. And you actually had some proposals,  
9 didn't you, or at least one for residual oil?

10 A. It was in the RFP.

11 Q. But the only one you have in there  
12 right now is a combined cycle plan; correct?

13 A. With natural gas.

14 Q. Natural gas combined cycle, correct.  
15 You concluded last year the technical potential was  
16 unlimited, which I guess is your conclusion this year  
17 as well?

18 A. They can be built just like any  
19 Ontario Hydro station whenever you want to.

20 Q. Once you get to the economics you can  
21 build as many as you want; right?

22 A. That's right.

23 Q. So once you had one 350 megawatt  
24 project that actually works, is actually financially  
25 feasible, that sort of unleashes the flood gates,

1 doesn't it.

2 A. No, there would be a supply curve for  
3 this technology because gas is a different price  
4 throughout the province, so it might be economic in one  
5 part of the province and it might be uneconomic in  
6 another part of the province just because of gas  
7 transportation costs.

8 Q. Okay. So you don't think there is a  
9 threshold past which once you pass the threshold you  
10 get a lot of it?

11 A. Oh, definitely. There will be not  
12 sure of the number. You will hit a number when the  
13 most expensive one in the province is economic, and  
14 then the whole province then can have one anywhere it  
15 wants.

16 Q. But you don't think you have passed  
17 the threshold into a lot of opportunity in that sector?

18 A. I believe we are near the threshold,  
19 based on the number of projects we have today.

20 Q. Didn't the proponent that you have  
21 agreed to the 350 megawatt project, haven't they also  
22 said publicly that they have four others as soon as you  
23 are ready to take them, same size?

24 A. I am not aware of that.

25 Q. You're not? And we went through, in

1 more detail than I would have cared, the discussion  
2 about whether they were economically viable, and I  
3 understand your evidence to be that with the increase  
4 in avoided costs and the decrease in gas prices  
5 projects that were uneconomic last year are now  
6 economic; is that right?

7 A. Using the avoided costs that are  
8 being proposed now, plus the gas prices that they are  
9 able to obtain, the economics have greatly increased  
10 since when I forecast the 1990 NUG plan last year.

11 Q. Okay. Now, at the time the 1990 NUG  
12 plan was released you had quite a number of proposals  
13 for fossil projects in front of you, didn't you?

14 A. They came through the RFP, that's  
15 correct.

16 Q. Do you have an idea of what sort of  
17 total you had in front of you at that time? To the  
18 nearest 1,000 megawatts is fine.

19 A. It's over 2,000.

20 Q. And in the 1990 NUG plan you just  
21 concluded that none of those were going to go ahead  
22 because the economics didn't work?

23 A. Yes, last year that was true.

24 Q. And you did spreadsheets to do that  
25 calculation?

1 A. I provided one in Interrogatory  
2 5.14...

3 Q. 164, actually.

4 A. 214.

5 Q. Oh, 214?

6 THE CHAIRMAN: Has that been mentioned  
7 before?

8 MR. SHEPHERD: I don't believe so.

9 MR. B. CAMPBELL: I don't believe so, Mr.  
10 Chairman.

11 THE CHAIRMAN: It should be added then.

12 THE REGISTRAR: That will be 321.21.

13 ---EXHIBIT NO. 321.21: Interrogatory No. 5.14.214.

14 (previously numbered, later deleted)

15 MR. SHEPHERD: Q. Now, presumably the  
16 developers who had proposed those projects had also  
17 done economic analyzes last year and decided that they  
18 would go ahead; isn't that correct?

19 MR. BROWN: A. I am not sure that's  
20 true. You don't have to look at economics to make a  
21 project proposal offer.

22 Q. I guess I don't understand why a  
23 developer would make a proposal to you to do a project  
24 if the project didn't work financially.

25 A. Well, I don't think they are fully



1 aware of the gas costs/capital costs at the time  
2 proposals are submitted in the early stages, and I  
3 don't think they are aware of the price Hydro has to  
4 operate it.

5 Q. So, they just sort of put proposals  
6 in on a flyer hoping that somehow it would work? Is  
7 that...?

8 A. No, there were some very good  
9 proposals in the RFP, but I don't know if they were  
10 studying hard core economics at that time.

11 Q. Then it turns out that some of those  
12 projects that you concluded were uneconomic, the  
13 developers were right and you were wrong; right?

14 A. That's not true.

15 Q. Well, the 350 megawatts is true,  
16 isn't it?

17 A. You are looking at today's  
18 information, not last year's information.

19 Q. Well, both you and the developers  
20 were working with last year's information last year;  
21 right?

22 A. That's right.

23 Q. And the developers were right and you  
24 were wrong; is that correct?

25 A. I don't know the developer knew his

1 project would go ahead last year. I know I didn't  
2 think it would go through.

3 [10:50 a.m.]

4 Q. Now, one of the things - we talked  
5 earlier about this a little bit, and I was a little  
6 unclear about it - I understand that it is not, in  
7 terms of the change in gas prices, it's not the change  
8 in the day-to-day price of natural gas from last year  
9 to this year that was important, is it, it's the change  
10 in the price that people could get for long-term  
11 contracts that was important?

12 A. Well, we require they have a fifteen  
13 year gas contract.

14 Q. Sorry?

15 A. We require they have a fifteen year  
16 gas contract, so that's the price that's important to  
17 them.

18 Q. No, no. But in terms of the  
19 economics, you said that one of the main reasons why  
20 the economics have changed is because natural gas  
21 prices have change; right?

22 A. Yes.

23 Q. And the spot prices haven't changed  
24 that much, have they? The day-to-day prices of natural  
25 gas prices haven't changed that much; have they?

1 A. About 20 per cent since last year.

2 Q. The spot prices?

3 A. That's the information I have is on  
4 spot, but I imagine that the long-term contract prices  
5 have been changing as well with that.

6 Q. Well, when you say you imagine,  
7 presumably you had some data to back that up when you  
8 change your economic analysis.

9 A. In discussions with the proponents,  
10 the gas contract information they are talking about is  
11 a lot better than it was a year ago.

12 Q. The other thing that, the other  
13 reason that you mentioned that economics had improved  
14 in this area, and presumably it's true in cogeneration,  
15 as well; is that right?

16 A. About the gas?

17 Q. Yes. Gas in the same way as gas  
18 makes combined-cycle projects more economic today  
19 because the price has gone down, the same is true with  
20 cogeneration; right?

21 A. Mostly for those who can get their  
22 own gas.

23 Q. Which is all of the big cogen  
24 projects?

25 A. Big industrial, yes.

1 Q. You didn't change your projection of  
2 thermally-matched cogeneration to adjust for better  
3 economics, did you?

4 A. In the comparison of the gas forecast  
5 I used in the 1991 NUG plan and the one that I am  
6 planning to use for the 1991 NUG plan, the difference  
7 was very slight in the terms of the long-term outlook  
8 on gas.

9 Q. Well, this is the part that I am  
10 having a lot of problem with. You said the reason why  
11 the economics are better is because gas prices have  
12 dropped.

13 A. Today.

14 Q. From last year to this year?

15 A. That's correct.

16 Q. But now you are saying there is no  
17 change in the gas price that you are using from the  
18 1990 plan to 1991 plan.

19 A. When I am looking at the year 1995  
20 and year 2000 and the year 2005, those numbers are very  
21 similar. The price that's available today for a  
22 proponent in 1991 is a lot less.

23 Q. So, this change this year, it is just  
24 a temporary blip. People are being able to get in at  
25 low rates, get their projects in at low rates, but it's

1 not going to keep going?

2 A. There is a window of opportunity and  
3 it is arguable how long this window is going to be  
4 open.

5 Q. I like your phrase better, window of  
6 opportunity is better than temporary blip, I guess.

7 Anyway, I was going on to interest rates.  
8 Do I understand correctly that your testimony is that  
9 interest rates have fallen from last year to this year  
10 and that's improved project economics?

11 A. That is one of the factors.

12 Q. Okay. Now my recollection, maybe you  
13 could correct me if I am wrong, is that Hydro's  
14 interest rate forecast last year for interest rates  
15 this year turned out to be too high, but that its  
16 forecast for years after this year hasn't changed much;  
17 isn't that right?

18 A. I think the long-term outlook is  
19 essentially the same.

20 Q. So again, we are talking about a  
21 temporary window of opportunity?

22 A. Yes.

23 Q. Anybody who gets their interest rate  
24 fixed this year is doing better than you expected them  
25 to?



1 A. Better than I thought a year ago,  
2 yes.

3 Q. Now, I understand your evidence to be  
4 that you haven't yet nailed down where you draw the  
5 line between what is a major supply NUG and what is  
6 cogeneration; is that correct?

7 MR. VYROSTKO: A. That's correct.

8 Q. So, as of right now, the numbers we  
9 are looking at, anything that is technically  
10 cogeneration is in your cogeneration numbers and  
11 anything that has no heat load at all or non-electric  
12 load, if you like, at all is in your major supply NUG  
13 number; is that correct?

14 MR. BROWN: A. Anything that's committed  
15 or expected to be committed was put in our preliminary  
16 1991 forecast, no matter how efficient the cogenerator  
17 was. After those commitments my forecast is based on  
18 high-efficiency cogeneration. But there is still a  
19 number that we received so far that are going to be  
20 included in cogeneration, and this is the number we  
21 quoted last week.

22 Q. That's for future projects. So, the  
23 number then for future projects, it's all high  
24 efficiency?

25 A. Yes.

1 Q. The major supply NUGs is all  
2 electricity only; isn't it?

3 A. Yes.

4 Q. So where in your projections are the  
5 ones in between?

6 A. In cogeneration or wood waste?

7 THE CHAIRMAN: Sorry?

8 MR. BROWN: In cogeneration or wood  
9 waste.

10 THE CHAIRMAN: I don't think that's quite  
11 responsive to the way I understand the question.

12 What do you say, are you getting away of  
13 perhaps focusing on what high efficiency means?

14 MR. BROWN: In our forecast we used a  
15 heat rate of 4,800 btu's per kilowatthour.

16 THE CHAIRMAN: Up to what? When does it  
17 stop being highly efficiency?

18 MR. BROWN: That's the number we haven't  
19 determined.

20 THE CHAIRMAN: All right. But I think  
21 what Mr. Shepherd wants to know, is the gap between the  
22 electricity-only project and the one that has a heat  
23 rate of, say, something between 4,800 and 10,000.

24 MR. BROWN: We haven't deciding line or  
25 the qualification. My NUG plan will assume all those

1 who qualify I will try and forecast. All those who do  
2 not meet the criteria are not included in future NUG  
3 plans.

4 MR. SHEPHERD: Q. Until they are  
5 committed?

6 MR. BROWN: A. Yes.

7 Q. And once they are committed where  
8 will they go?

9 A. In cogeneration. So I account for  
10 them because there is a cogeneration there.

11 Q. So, let's say you pick a 7,000 heat  
12 rate and a project comes in at 7,500 and you decide,  
13 for whatever reason, you decide you are going to take  
14 it. Okay? Once you commit that, that project with the  
15 7,500 heat rate goes in cogeneration; correct?

16 A. Yes.

17 Q. But right now your forecast doesn't  
18 include that project, that hypothetical project?

19 A. That's correct. Those hypothetical  
20 projects would be based on system need.

21 Q. So that project will be treated the  
22 same as a gas CTU, or a coal plant, for that matter?

23 A. Yes.

24 Q. What are you going to do if people  
25 come in with combined-cycle plants, say, that have a

1 heat rate below your threshold for what you call cogen?  
2 Let's say you choose 7,000, it's not unreasonable to  
3 expect that might be the range you choose; right?

4 A. I am not sure of the number, but  
5 that's what the government uses.

6 Q. Yes. So, what happens if you have a  
7 combined-cycle plant come in below that, are you then  
8 going to treat that as cogeneration?

9 A. It's hard for me to estimate because  
10 we don't have the rules yet.

11 Q. Well, you are going to use heat rate  
12 as your criteria?

13 A. That hasn't been determined.

14 Q. Isn't it true, Mr. Brown, that right  
15 now you have one combined-cycle proposal in front of  
16 you today that has a heat rate below 7,000 and you have  
17 many relatively high-efficiency cogen projects that are  
18 above 7,000; isn't that right?

19 A. I am not aware of a combined cycle  
20 that beats 7,000, and I am sure there is quite a few  
21 cogen that can beat 7,000.

22 Q. So you currently do not have a  
23 project before you, a combined-cycle project that has a  
24 heat rate below 7,000, is that your evidence

25 A. I am not aware of any project.

1 Q. Have you look at the details of 350  
2 megawatt project you have committed?

3 A. I'm basing it on what I know of the  
4 technology.

5 Q. Just to hypothesize for a second.  
6 Let's suppose that the heat rate on that project that  
7 you have currently in major supply NUGs, right, 350  
8 megawatts, let's just suppose, hypothetically, that the  
9 heat rate on that meets your test for high-efficiency  
10 cogen, are you going to move that into industrial  
11 cogeneration?

12 A. If there is no cogeneration with it,  
13 no.

14 My category is not based on heat rate in  
15 terms of where I put the numbers in the NUG plan. If  
16 there is a cogeneration element of the project, it gets  
17 included in cogen; if there a wood waste element it  
18 gets included in wood waste, and if it is just pure  
19 electricity generation from natural gas or any other  
20 fuel, it goes in major supply.

21 Q. But right now, Mr. Brown, we have a  
22 3,100 NUG number that we can't tell except by asking  
23 you a bunch of questions, we can't tell how much of  
24 that is pure natural gas generation, can we? We can't  
25 look at that chart and figure it out?



1 A. No, you can't.

2 Q. But we know after asking you  
3 questions that 1,250 megawatts of it is pure and simple  
4 burning natural gas for electricity; right?

5 A. That's my estimate of the technical  
6 potential of those sites.

7 Q. Well, your evidence on Thursday was  
8 1,250 megawatts is what you have included in your  
9 current numbers as achievable pure natural gas, most of  
10 it already committed; is that right?

11 A. I believe one of the undertakings  
12 will address this issue, that was agreed to on  
13 Thursday.

14 Q. All right. That's the one that we  
15 are going to get today or tomorrow; is that right?

16 A. Yes.

17 Q. We will get that before this  
18 cross-examination is finished?

19 MR. B. CAMPBELL: These are the tables we  
20 are talking about? I certainly hope so.

21 MR. SHEPHERD: Okay.

22 Q. Now, you still have before you, Mr.  
23 Brown, over 1,000 megawatts of fossil plant proposals  
24 that developers still think are economic; is that  
25 right?

1 MR. BROWN: A. Cogeneration or major  
2 supply?

3 Q. Major supply?

4 A. I am not aware of any that has  
5 project status.

6 Q. What do you mean "project status"?

7 A. We have had proposals in the past  
8 through RFP No. 1. They are no longer on the  
9 negotiation list, that we call a proposed project. All  
10 the proposed projects are cogeneration.

11 Q. So you just told them to go away for  
12 now, you don't need them; is that right?

13 A. No, they follow the RFP No. 1  
14 process, and 1,700 megawatts remains and those all  
15 cogeneration except for 350 megawatts.

16 Q. That's because you did a bunch of  
17 calculations and concluded that the fossil -- what you  
18 would now call major supply NUGs were uneconomic?

19 A. No, there was a negotiation process  
20 that went on with each proponent.

21 Q. So, you tried to negotiate with them  
22 and couldn't come to terms; is that right?

23 MR. VYROSTKO: A. When we went through  
24 the identification of the projects in the RFP and we  
25 tried to determine the process by which we are going to

1 negotiate with those projects, we went through a  
2 process called granting of status. And if you recall,  
3 the direct evidence that we put forward last Tuesday,  
4 when you move from project identification to project  
5 acceptance, one of the elements of project acceptance  
6 is whether in fact the project can be accommodated onto  
7 the transmission system, at the same time whether the  
8 project had enough information in its submission under  
9 the request for proposal process, and if it met all of  
10 that it would have been granted status. And then the  
11 other one was looking at economics.

12 If you recall the first stage of the  
13 project negotiations is project identification and  
14 that's where some information goes back and forth  
15 between the proponents and ourselves in looking at  
16 generic rates, information, the locations, and all  
17 that. As a result of that stage there, a number of the  
18 projects were found to be non-economic. In most cases  
19 the proponent themselves made the choice. It's up to  
20 them to decide whether its economic. They just dropped  
21 out.

22 [11:05 a.m.]

23 Q. I was under the impression that you  
24 decided the status of each project; didn't you?

25 A. We decided that they had or they

1 didn't have status, okay, based on the criteria.

2 There were a number of criteria, one was  
3 whether, in fact, the project was economic and, as I  
4 said, the proponent decided whether, in fact, it's  
5 economic, and he just determines to step away from the  
6 status side.

7 The other factor that we used at that  
8 time was if proponents had more than -- a number of  
9 proponents had submitted more than one project and one  
10 of the objectives, as we've discussed, we wanted to  
11 ensure that we got as much proponents involved in the  
12 process as possible and, therefore, we made a call to  
13 limit any one proponent to three projects. So that was  
14 another reason why some dropped out.

15 And access to transmission facilities was  
16 another one. So, by using these criteria to determine  
17 whether they had status, we were able to then, you  
18 know, determine those projects that we were going to  
19 proceed further.

20 Some of those calls were made by us, some  
21 of those calls were made by the proponents.

22 Q. So your evidence is that Hydro did  
23 not determine that projects were uneconomic?

24 A. No, in a number of cases the  
25 proponent themselves determined that.

1 Q. And do I take it then that in a  
2 number of cases Hydro determined that?

3 A. No, in fact, the proponent themselves  
4 determined whether, in fact, the project is economic.  
5 What we would do is, as we did with the request for  
6 proposal, we identified a price range and the  
7 proponent, based on that price range, decided to submit  
8 a proposal, if they felt that they wanted to go further  
9 with the process.

10 And then at that first stage as I talked  
11 about where further information was discussed, at that  
12 time they would look at the proposal and if they felt  
13 nothing changed significantly to, in fact, make it  
14 worthwhile to continue, then they would just drop out.

15 Q. Okay.

16 MR. B. CAMPBELL: Mr. Chairman, I  
17 understand Mr. Shepherd's just going on.

18 Before we get too far along in the  
19 transcript, I think I misadvised the Board on whether  
20 5.14.214 had a number already. I believe you'll find  
21 that that number is 321.16, so 321.21 should be held  
22 open.

23 My apologies. Thank you.

24 MR. SHEPHERD: Q. The last area in the  
25 NUG plan is hydraulic, and this is the area I have the



1 most difficulty with and it's the closest to my heart  
2 so bear with me.

3 Let's start with the technical potential  
4 for hydraulic NUGS which is on page 13 of Exhibit 83,  
5 and maybe Mr. Mondrow could put up the next overhead  
6 because we can follow this a little more clearly.

7 One of the things I'm going to try to do,  
8 Mr. Brown, is figure out which set of numbers is right  
9 and then we'll analyze the set of numbers that's  
10 correct.

11 The 1990 NUG plan, Exhibit 83 at page 13,  
12 says".

13 "The gross technical potential for a  
14 hydroelectric development in Ontario is  
15 19,871 megawatts."

16 Is that still correct?

17 MR. BROWN: A. No, it isn't.

18 Q. How is that changed?

19 A. The forecast has been -- or the  
20 potential has been increased to 19,900 with the  
21 addition of 29 megawatts from an Ontario Hydro's Ottawa  
22 River stations and was provided in a previous  
23 interrogatory.

24 Q. All I have to do is find my overheads  
25 and I can -- here we are.

1 THE CHAIRMAN: Which overhead were you  
2 looking at now?

3 MR. SHEPHERD: This is page 5 of Exhibit  
4 326, Mr. Chairman, the fifth overhead.

5 Q. So the 19,900 megawatt number is  
6 correct and that's because you added 29 megawatts of  
7 Ontario Hydro generation?

8 MR. BROWN: A. It's potential at  
9 existing Ontario Hydro stations along the Ottawa River.  
10 This was provided in Interrogatory 6.14.79.

11 MR. SHEPHERD: This goes to show you that  
12 we haven't started looking at the Panel 6  
13 interrogatories yet.

14 THE REGISTRAR: 321.21.

15 ---EXHIBIT NO. 321.21: Interrogatory No. 6.14.79.

16 THE CHAIRMAN: Thank you.

17 MR. SHEPHERD: Q. Okay. Now, the only  
18 other change I could find here is that you've changed  
19 the number of uneconomic northern rivers from 5,000 to  
20 5,112. Should we assume that the 5,112 number is the  
21 more accurate?

22 MR. BROWN: A. 5,000 was just a rough  
23 estimate that was provided in Exhibit 28, the hydraulic  
24 plan.

25 By adding up the four river basins in

1 Exhibit 82 you will get 5,112 and that is shown in  
2 figure -- sorry, Table A1.9 in Exhibit 83, the NUG  
3 plan, there are four river basins that are given a  
4 watershed factor of 0 per cent. That's the 5,000  
5 megawatts.

6 Q. This is in A1.9?

7 A. Page 24. Look at the far right-hand  
8 side of the table, there's a watershed factor and for  
9 four watersheds 0 per cent is used.

10 Q. So if you just add up the totals for  
11 those watersheds you should get 5,112?

12 A. Yes.

13 Q. Okay. Well, I'm not going to do that  
14 now. But you didn't use 5,112, you actually used 5,000  
15 last year; right?

16 A. In the write-up we put 5,000 but, as  
17 you can see in Table A1.9, we actually used 5,112 in  
18 our calculation.

19 Q. Well then, how come you ended up with  
20 1,335 megawatts of developable potential. Isn't that  
21 deducting the 5,000?

22 A. In the write-up of technical  
23 potential we used 5,000.

24 Q. So the number you used was based on  
25 the 5,000 even though you had the correct number?

1                   A. The estimate of technical potential  
2 was based on 5,000, the estimate of attainable  
3 potential used the 5,112.

4                   Q. Well, that's interesting. I don't  
5 see where, in achievable potential, the 5,112 number  
6 comes into it at all. How does it come into that  
7 calculation somehow?

8                   A. By using the 0 per cent water factor,  
9 we are essentially excluding four watersheds. Well,  
10 the exclusion is the 5,112. So Table A1.9 is how we  
11 determine the attainable potential. That 112 that was  
12 not stated in the estimate of technical potential was  
13 used, I would have had to use a number greater than  
14 zero in that table.

15                  Q. I see. I guess I understood that  
16 this achievable forecast -- maybe I just misunderstood  
17 it.

18                  It looked to me like the achievable  
19 forecast was almost entirely made up of projects that  
20 you knew about that you had assigned probabilities to;  
21 isn't that right?

22                  A. That is true, to the year 2000.

23                  Q. Okay. All right. I think I  
24 understand. So anyway, the 5,112 is right; the 5,000  
25 is wrong?

1 A. Yes.

2 Q. So the 1,335 megawatts of technical  
3 potential that you had in Exhibit 83, that's not  
4 correct, the 1,252 that you have in Exhibit 320 is  
5 correct?

6 A. And that accounts for the 29  
7 megawatts at Ottawa and the 112 round-off in northern  
8 river basins.

9 Q. All right. So let's work with the  
10 same set of numbers, which are these in Exhibit 320.  
11 Now, the number of 19,900, where does that number come  
12 from?

13 A. Exhibit 82.

14 Q. All right. Now, that purports to be  
15 a listing of every single hydroelectric site in the  
16 Province of Ontario; doesn't it?

17 A. It was the best estimate of hydraulic  
18 resources in the province.

19 Q. Well, is it an estimate or is it a  
20 list?

21 A. It's a site by site list.

22 Q. Okay. So it's supposed to include  
23 everything; right?

24 A. They tried to incorporate everything  
25 they were aware of.



1 Q. Now, that includes large areas of  
2 northern Ontario that are largely uncharted, so there's  
3 no sites listed; is that right?

4 A. I'm not sure which ones would be  
5 omitted. The attempt of the resource estimate was to  
6 look at all sites where they had information, and that  
7 goes all the way up to Hudson's Bay, but there's no  
8 guarantee they didn't miss a site.

9 Q. Okay.

10 THE CHAIRMAN: But just to remind me,  
11 there are no sites that have been -- known sites  
12 excluded; is that right, no matter where they are?

13 MR. BROWN: There are no known sites  
14 excluded, no.

15 MR. SHEPHERD: That was the question I  
16 was looking for, Mr. Chairman. Thank you. I'm going  
17 to file an exhibit then and see whether that's true.

18 THE REGISTRAR: Number 329, Mr. Chairman.

19 THE CHAIRMAN: Thank you.

20 ---EXHIBIT NO. 329: Topographical Map submitted by  
21 IPPSO.

22 MR. SHEPHERD: Q. Mr. Brown, you're an  
23 engineer; right?

24 MR. BROWN: A. Electrical engineer.

25 Q. Oh. I can see I'm going to run into

1 trouble here.

2 Q. Do you know how to read a  
3 topographical map?

4 A. I've gone canoeing, so I have read  
5 them.

6 Q. All right. This is a topographical  
7 map. We have intentionally taken off the names for  
8 various reasons, which you will understand in a second,  
9 and what I'm going to ask you to do, just -- let me  
10 explain it first.

11 This is a map, the contour interval is 10  
12 metres, the grid is 1,000 meters, and what we're  
13 looking at is a river that starts on page 1 of this  
14 exhibit where the little star is, it goes through page  
15 2, going north to page 3, and you see the star where it  
16 comes back into another river.

17 All I want to do is figure out whether  
18 there are any hydroelectric sites on this river. It's  
19 something you can spot from a top map; right, it's  
20 fairly easy if you have certain configurations you know  
21 that there is a site there; isn't that correct?

22 A. I'm not used to reading these maps  
23 for that purpose.

24 Q. I wonder if Mr. Vyrostkco or Mr.  
25 Snelson are.

1 MR. VYROSTKO: A. No, I'm not.

2 MR. SNELSON: A. I don't think either of  
3 us are but there are experts in hydraulic coming on  
4 Panel 6.

5 MR. B. CAMPBELL: I was just going to  
6 say, I think there will be in Panel 6. Whether  
7 technically they would agree with the proposition that  
8 my friend has put, I can't say, but certainly we will  
9 have people with specific hydraulic expertise on Panel  
10 6.

11 MR. SHEPHERD: I'm at a loss as to what  
12 to do, Mr. Chairman, I'm trying to figure it out.

13 MR. B. CAMPBELL: Well, Mr. Chairman,  
14 clearly my friend feels that there's a hydraulic  
15 potential on this unknown river wouldn't, when push  
16 comes to shove, it would be simplest if you could just  
17 tell us what the river is, we'll tell our Panel 6  
18 people and they can be ready to answer the questions as  
19 to whether or not they believe this stretch of river  
20 indeed contains hydraulic potential and, if so, whether  
21 or not it's included in Panel 2 or in Exhibit 82, and  
22 presumably if not and they agree there's potential, why  
23 not, or whatever other permutation or combination comes  
24 out.

25 But I think I would like to suggest that

1 that seems like a more sensible way to proceed.

2 MR. SHEPHERD: Well, given the fact that  
3 these witnesses can't answer the question --

4 THE CHAIRMAN: I'm not quite sure what  
5 all this adds up to. You're, I take it, taking issue  
6 with the statement that all known potential hydraulic  
7 sites have been identified.

8 MR. SHEPHERD: That's correct.

9 THE CHAIRMAN: I suppose that gets into  
10 the issue of what is a hydraulic site and what is the  
11 criteria for a hydraulic site. I guess that's the area  
12 where this panel would have some difficulty answering  
13 your questions.

14 [11:21 a.m.]

15 MR. SHEPHERD: Okay.

16 Q. For the record then, this is Adams  
17 Creek. It is the diversion channel for the Mattagami  
18 projects, and none of the sites on the river are listed  
19 in Exhibit 82, and I will take Mr. Campbell's  
20 suggestion and proceed with questions in Panel 6 on  
21 that. Okay? You don't need worry about it.

22 MR. BROWN: A. I know you are not  
23 supposed to do this. I am a little bit aware of Adams  
24 Creek diversion.

25 Q. Please go ahead.

1                   A. All I will add is that this is not a  
2 normal river and is only used during freshet when there  
3 is too much water on the Mattagami and water is  
4 diverted down this channel for flood conditions to  
5 increase the efficiency of the Mattagami plants.

6                   So this is not a year-round river.  
7 That's all I can add on this point.

8                   Q. Thank you. You are familiar with  
9 this particular piece of geography, then?

10                  A. I am familiar with the Mattagami  
11 River plants.

12                  Q. Have you seen Adams Creek?

13                  A. No, I haven't.

14                  Q. Oh. If there was a regular flow down  
15 that river would it be fair to say that there would be  
16 a lot of hydroelectric potential on that river?

17                  A. It's a function of the flow. It  
18 presumably would have the same drop as the Mattagami  
19 River plant, close to the same end point.

20                  Q. That's 118 metres, isn't it?

21                  A. If you add them up. I am not sure  
22 there are.

23                  Q. It's a pretty big head, isn't it.

24                  A. Four plants on the river?

25                  Q. Yes. Mr. Chairman, I am planning to



1 do an analysis of those numbers up there, and it might  
2 be better if we do that after our break rather than  
3 before.

4 THE CHAIRMAN: All right. We will break  
5 for 15 minutes.

6 THE REGISTRAR: This hearing will recess  
7 for 15 minutes.

8 ---Recess at 11:24 a.m.

9 ---On resuming at 11:44 a.m.

10 THE REGISTRAR: Please come to order.  
11 The hearing is again in session. Be seated, please.

12 MR. SHEPHERD: Mr. Chairman, I understand  
13 from Mr. Campbell that Mr. Vyrostkco wishes to correct  
14 something he said this morning.

15 So, Mr. Vyrostkco, could you do that?

16 MR. VYROSTKO: I would like to, yes.

17 In response to a question you were asking  
18 with regard to how many utilities we had submitting  
19 projects and the 10 that were in the 1,000 megawatts,  
20 and I said I believed there were five. There are  
21 three.

22 MR. SHEPHERD: Q. And the other four  
23 Canadian developers are non-utilities?

24 MR. VYROSTKO: A. That's correct.

25 Q. Is that four different developers, by

1 the way?

2 A. Yes.

3 Q. Now -- just taking a shot there.

4 Could we go to the small hydro numbers because I had a  
5 lot of trouble with some of these, and I just want to  
6 see if maybe we can walk through them and you can clear  
7 up my confusion.

8 We are going from the Exhibit 320  
9 numbers. I am looking at page 5 of Exhibit 326 in the  
10 right-hand column, which you will agree, Mr. Brown, are  
11 the correct numbers?

12 MR. BROWN: A. Yes, those are the final  
13 numbers.

14 Q. Okay. So you start with the 19,900,  
15 which is the total amount of sites that you know about  
16 in the province; correct?

17 A. Yes, based on Exhibit 82.

18 Q. Well, Exhibit 82 as is subsequently  
19 amended?

20 A. To include the 29 megawatts.

21 Q. Okay. Then you deduct from that  
22 existing Ontario Hydro facilities and existing pre-1989  
23 NUGs; correct?

24 A. The hydraulics, yes.

25 Q. And you obviously can't include those

1 in technical potential if they're already built; right?

2 A. That's right.

3 Q. So now we have 12,433 megawatts.

4 Then, as I understand it, you deduct 3,591 megawatts,  
5 which are sites at which Ontario Hydro has currently  
6 proposed to building something; is that correct?

7 A. This is the portion that's in the  
8 Ontario Hydro hydraulic plan.

9 Q. Okay. That's 3,591 megawatts?

10 A. Yes.

11 Q. Are you now changing that number  
12 because of the recent change to Hydro's plans in the  
13 Moose River Basin?

14 MR. B. CAMPBELL: No. The plan will be  
15 spoken to in Panel 6, and, as you will know, Mr.  
16 Shepherd, that some of that capacity is capacity that  
17 was included in the hydraulic program and will not be  
18 further included in the hydraulic program pending  
19 discussions with Aboriginal groups.

20 MR. SHEPHERD: Q. Well, Mr. Brown, if  
21 your hydraulic plan -- let's say it's now 2,000  
22 megawatts or something like that, right, Ontario  
23 Hydro's hydraulic plan? Then, just looking at your  
24 methodology for calculating technical potential,  
25 shouldn't you be deducting 2,000 megawatts there?

1 MR. BROWN: A. If the hydraulic plan  
2 changed but you will remember there are many  
3 categories, and one of the categories is future  
4 considerations.

5 If the number changes from 3,591, that  
6 would mean some sites have been released to the private  
7 sector that are in Ontario Hydro's plan. Right now  
8 that is not the case, which is why I am using 3,591.

9 THE CHAIRMAN: Sorry, what's the 2,000  
10 number?

11 MR. SHEPHERD: That's the hydraulic plan  
12 less the Moose River Basin sites that have been -- I am  
13 not sure whether they have been withdrawn or put on  
14 hold or what.

15 THE CHAIRMAN: So they were 1,591?

16 MR. SHEPHERD: They were about 1,500, I  
17 think. Isn't that right?

18 MR. B. CAMPBELL: I used to have this  
19 number, but I don't.

20 THE CHAIRMAN: Perhaps it doesn't matter.  
21 Perhaps it doesn't matter too much.

22 MR. SHEPHERD: No.

23 THE CHAIRMAN: The 3,591 includes the  
24 Moose River Basin sites that are under suspension at  
25 this moment.

1 MR. SHEPHERD: Q. Now, again just  
2 looking at how you get your technical potential number,  
3 suppose that this Board hypothetically were to conclude  
4 that Hydro should not proceed with some or all of its  
5 hydroelectric plans.

6 Would that have the effect then of  
7 increasing technical potential in your calculations?

8 MR. BROWN: A. It would depend on the  
9 reasons for the change.

10 If it is because of northern river  
11 development, it might increase my 5,112 to a higher  
12 number, and then the bottom line wouldn't change  
13 because you would just be transferring it from one  
14 category to another.

15 Q. But it would still be technical  
16 potential, wouldn't it?

17 A. In my estimate of technical, the  
18 1,252, I have removed these four northern river basins,  
19 and if for some reason the Moose was included in that I  
20 would have to add that.

21 Q. Well, let's just say for argument's  
22 sake that there are 1,500 megawatts in the Moose River  
23 Basin that were not approved or Hydro decided not to go  
24 ahead with.

25 THE CHAIRMAN: Those are two different



1 things.

2 MR. SHEPHERD: Well, Mr. Chairman, I  
3 think for the purpose of the question it doesn't matter  
4 whether Hydro decides not to proceed or the Board  
5 denies them the right to proceed.

6 THE CHAIRMAN: Well, if Hydro decides not  
7 to proceed and all other things being equal I would  
8 think they would go into the technical potential, but  
9 if they are excluded for other reasons, either  
10 non-approval or because they're uneconomic in northern  
11 rivers, then they wouldn't go into potential. That's  
12 the evidence.

13 MR. SHEPHERD: Q. All right. Let's just  
14 leave it at then this Board disapproves of 1,500  
15 megawatts, let's say.

16 Is it fair to say that there could be  
17 other ways of developing that same potential that are  
18 small hydro rather than large hydro?

19 MR. BROWN: A. You will have to address  
20 this to Panel 6.

21 Q. Are you aware of any small hydro  
22 potential of that sort of magnitude in the Moose River  
23 Basin?

24 A. There are over 50 megawatts of sites  
25 under 2 megawatts that I have shown in the NUG plan.

1 Q. There is over -- sorry, I didn't hear  
2 you.

3 A. 50 megawatts of sites less than 2  
4 megawatts.

5 Q. In the Moose River Basin.

6 A. In the Moose River Basin.

7 Q. Of course, that assumes the  
8 development of the big sites as big sites; right?

9 A. There is no link here. I am looking  
10 at technical potential here at these sites. I am not  
11 changing that number.

12 Q. Okay. So, let's leave that. That's  
13 something I guess I should address more fully in Panel  
14 6; is that correct?

15 A. Yes. For the purposes of the 1990  
16 NUG plan I use the hydraulic plan, and that is 3,591.

17 Q. So, after deducting that number you  
18 get to 8,842 megawatts. Then you deduct -- well, in  
19 the NUG plan you said you deducted five other numbers  
20 although now I think you have referred to it in Exhibit  
21 320 as three other numbers. Let me just deal with  
22 those.

23 You deduct 5,112 megawatts that are on  
24 uneconomic northern river systems; correct?

25 A. Yes.

1 Q. And isn't it in fact true that you  
2 have proposals already before you for some of those  
3 sites?

4 THE CHAIRMAN: You mean NUG proposals?

5 MR. SHEPHERD: Q. NUG proposals?

6 MR. B. CAMPBELL: Mr. Shepherd, just to  
7 be clear, when this was spoken to there was a  
8 distinction made between, for non-utility generation  
9 purposes, for connection to the grid. Are you speaking  
10 of proposals that are remote or proposals for  
11 connection to the grid?

12 MR. SHEPHERD: Q. No, proposals for  
13 connection to the grid.

14 MR. BROWN: A. There are portions of  
15 specifically the most southern watershed, the Albany  
16 River, in northwestern Ontario that surrounds Lake  
17 Nipigon, and I believe we have one project proposal at  
18 that far end of the watershed.

19 Q. But that's still included in the  
20 5,112 megawatts that you have excluded; right?

21 A. No, because it would be moved from  
22 the sites and included in the known project category.

23 Q. Well, didn't you tell us to take  
24 Table A1.9 in Exhibit 83, go to the river systems with  
25 a watershed factor of zero per cent, and add up all

1 those numbers and you will get to 5,112?

2 A. That's just the potential  
3 unidentified sites is the 5,112.

4 Q. So then, for example, under "Known  
5 Projects" you have 15 megawatts on the Albany northeast  
6 and 8.3 megawatts on the Albany northwest. Those are  
7 not excluded?

8 A. That is correct.

9 Q. Okay. But you have concluded, have  
10 you, that aside from those known projects nobody else  
11 is going to build any projects on those river systems?

12 A. I believe there is another one in the  
13 Severn as well.

14 Q. Sorry, in the Winisk, actually.

15 A. That was corrected in the  
16 interrogatory. It should have said the Severn.

17 Q. Severn. Okay.

18 A. I have only excluded those that have  
19 come forward and identified that they are willing to  
20 develop those sites. All others have been excluded.

21 Q. So that implies then -- am I correct  
22 that it implies that you are not going to get any more  
23 proposals of any sort from those river systems?

24 A. It's based on the proposal  
25 information we have today, and there is no other

1 information. Both those sites, in my estimate, assume  
2 zero development.

3 Q. But all of the three sites that are  
4 now proposed here you have assumed zero per cent  
5 likelihood that they will proceed?

6 A. No, I haven't. It depends on their  
7 category. If there is a proposed project, that gets a  
8 higher probability; if it is an identified project, it  
9 gets slightly less.

10 [11:55 a.m.]

11 Q. Okay.

12 A. This a very small part of the  
13 southern portion of our watershed where it's near the  
14 grid.

15 Q. But isn't it true, Mr. Brown, again  
16 just looking at that same table, you have under Albany  
17 northeastern region, you have 15 megawatt project.  
18 That's the one in the Nagagami River; right?

19 A. Yes.

20 Q. Isn't it true that there is another  
21 approximately 50 megawatts within 10 miles of that  
22 site, other sites?

23 A. I am not aware of the proximity of  
24 other sites.

25 Q. If there are other proximate sites



1       you have excluded them all; haven't you?

2                   A. Yes, I have.

3                   Q. Are you aware of whether there is any  
4       project activity in any other sites in that area?

5                   A. If I am aware it will be included in  
6       the NUG plan.

7                   Q. And it is not?

8                   A. Not in the 1990, no.

9                   Q. Well, do you have more up-to-date  
10      information that you can share with us?

11                  A. Not at this time. When I produce the  
12      '91 NUG plan we will be using the most up-to-date  
13      project information we have.

14                  Q. Okay. So you take the 8,842, you  
15      deduct the 5,112, that's uneconomic northern rivers,  
16      and I take it that's every site this those four river  
17      basins except the ones where you have proposals?

18                  A. That is correct.

19                  Q. Okay. Let me just ask you a general  
20      question about all of these deductions. Technical  
21      potential for everything else wouldn't deduct any of  
22      these things; would it? Like, if you are doing  
23      technical potential for cogen or wood waste, or  
24      anything like that, you don't deduct these sorts of  
25      considerations; do you?

1                   A. In wood waste we deducted for  
2 collectibility reasons.

3                   Q. All right. But you didn't deduct for  
4 economics?

5                   A. Well, collectibility means economics.

6                   Q. Okay. You didn't do that for cogen  
7 or for combined cycle, or anything like that?

8                   A. Not in those categories, no.

9                   Q. Why did you decide to use a different  
10 definition for small hydro and wood waste than you did  
11 for the other things?

12                  A. I guess our definition is really,  
13 what do NUGs have access to rather than what is out  
14 there, and we are saying that this 5,000 megawatts is  
15 way north and would not be developed. So when we  
16 forecast on our forecast, let's focus on a portion  
17 where NUGs are going to be active.

18                  Q. All right. The 694 megawatts in park  
19 land, I assume that none of that is included in the  
20 northern area that is covered by the 5,112; is that  
21 right?

22                  A. That's correct.

23                  Q. You have done some sort of analysis  
24 to make sure that the numbers don't overlap?

25                  A. No, I have not. And that comes out

1 of Exhibit 28 where it is shown there as in addition to  
2 the 5,000 megawatts.

3 Q. So we should ask Panel 6 about that?

4 A. Yes.

5 Q. And then we have the 1,784 megawatts  
6 here, which you broke down in Exhibit 83 as three  
7 different numbers. It's still made up of the same  
8 three different numbers?

9 A. They have been slightly changed  
10 because of the other corrections.

11 Q. Can you tell us what the new numbers  
12 for those three numbers are?

13 A. The 887 is 843; the 167 is 240, and  
14 the 730 is the difference between those two numbers and  
15 1,784.

16 Q. Which is 701; correct?

17 A. I don't have my calculator but it  
18 rings a bell.

19 Q. Will you accept that subject to  
20 check?

21 A. Yes.

22 Q. Okay. So, we have got 843 megawatts  
23 of uneconomic extensions to Ontario Hydro-owned sites?

24 A. Yes. Those are identified in Exhibit  
25 28.

1 Q. We are going to come to that. And we  
2 have got 240 megawatts of uneconomic extensions to  
3 existing NUGs, mainly old NUGs?

4 A. No, that's all NUGs in-service,  
5 committed, proposed and identified.

6 THE CHAIRMAN: I'm sorry, could you  
7 clarify the two items, they both, in the chart, are the  
8 same, uneconomic extensions. Is there a distinction?

9 MR. BROWN: One of them is Ontario Hydro,  
10 that is 887, now revised to 843, and the second one,  
11 167 that's been changed to 240 is for non-utility  
12 generators.

13 MR. SHEPHERD: Q. And that uneconomic  
14 extensions includes a component for projects that have  
15 been proposed to you at lower than the full developable  
16 amount?

17 MR. BROWN: A. That's correct.

18 Q. So, you have taken that right out of  
19 technical potential now?

20 A. Yes, for the next 25 years.

21 Q. And in cogen when you had that  
22 happen, you left it in both technical and achievable;  
23 didn't you?

24 A. Yes, we assumed those sites would be  
25 redeveloped or the size would increase.

1 Q. But not with small hydro?

2 A. No, we didn't.

3 Q. Why?

4 A. In designing a small hydro facility  
5 it's the civil works that's the major part. Unless you  
6 are designing it to absorb the full potential, you  
7 essentially have to knock down the dam and build  
8 another one to get this potential.

9 In cogen it may be as simple as adding on  
10 another unit.

11 Q. So, we were at your Harmon facility  
12 and my recollection was they weren't going to knock  
13 down any dam to increase the potential there.

14 A. Another unit was being added there.

15 Q. Isn't that like a cogen facility?

16 A. Yes.

17 Q. Isn't it true that you have a number  
18 of existing NUGs that are currently redeveloping  
19 without knocking down their dams?

20 A. There is limited potential there,  
21 yes.

22 Q. But none of it's in, it's all  
23 excluded?

24 A. Unless there is a proposal.

25 Q. Okay. It's not even in technical



1 potential right now?

2 A. No.

3 Q. Okay. And then this last 701  
4 megawatts, my understanding is that that was excluded  
5 for various other economic and environmental reasons?

6 A. That was stated in Exhibit 28, yes.

7 Q. Okay.

8 Please bear with me, Mr. Chairman, I have  
9 got numbers all over the place. It might be a bit hard  
10 to follow, but I will do my best.

11 Maybe you could turn to Interrogatory  
12 5.14.273, please.

13 THE CHAIRMAN: Has it been given a number  
14 yet?

15 MR. SHEPHERD: I don't believe so, Mr.  
16 Chairman.

17 THE CHAIRMAN: That will be 321.22.

18 MR. B. CAMPBELL: Just a minute, sir.  
19 I'm sorry, what is the interrogatory number?

20 MR. SHEPHERD: 5.14.273.

21 MR. B. CAMPBELL: I have it down as  
22 321.8.

23 MR. SHEPHERD: Good.

24 Q. Now, there it says that the 887  
25 megawatts, if you look in paragraph A of that

1       interrogatory, it says the 887 megawatts should be 814  
2       megawatts. That's wrong; isn't it?

3               MR. BROWN: A. It should include another  
4       29 megawatts that was identified.

5               Q. And you move the 73 megawatts that  
6       you changed there, you moved it over to NUG extensions  
7       not under review; correct?

8               A. That's correct.

9               Q. Should we just assume that that's  
10      coincidence that the two numbers adjusted to exactly  
11      the same amount?

12              A. No, it was a specific site that was  
13      double counted.

14              Q. Sorry, a specific site was double  
15      counted in the 887?

16              A. No. It was already included in 3,591  
17      and included in my number as well. One site that was  
18      put in my NUG plan and the Ontario Hydro hydraulic  
19      plan.

20              Q. So, it was in the 3,591?

21              A. Yes.

22              Q. For 73 megawatts. And it was also in  
23      your 887?

24              A. No, 887 is Ontario Hydro facilities.

25              Q. Well, you took 73 megawatts out of

1 your 887, why?

2 A. It was in the Ontario Hydro  
3 impractical extension category by mistake.

4 Q. Where should it have been?

5 A. In the 3,591.

6 Q. Okay. Well then, if it was in 3,591,  
7 and it shouldn't have been in the 887, why did you add  
8 it to the 167, I don't understand?

9 A. The potential or extensions not under  
10 review is the last number we calculate, so any other  
11 changes are going to affect that number. It's the  
12 catch-all.

13 Q. It is just a plug?

14 A. The numbers have to add up to 19,900.  
15 It's the only one I don't add up and calculate because  
16 it is the difference of all the other numbers.

17 Q. So when you say that category is NUG  
18 extensions not under review, that's just not true; is  
19 it? What it should say is number to balance.

20 A. No. The numbers I have in the NUG  
21 hydraulic plan are those I get from project proposals,  
22 so I know that that is not going to add up to the  
23 number of sites that are in Exhibit 82. The difference  
24 between what is in Exhibit 82 and project proposals as  
25 shown on this table is 240 megawatts, but I don't go

1 through and add it up individually.

2 Q. But a change from 167 to 240?

3 A. That's correct.

4 Q. Nothing happened to cause that change  
5 except that your numbers didn't balance anymore; is  
6 that right?

7 A. That's right.

8 Q. So, that 73 megawatts that you added  
9 in, it's not because you found some new NUG extensions;  
10 is it?

11 A. No, it's not. It means the 167 was  
12 stated in error.

13 Q. Okay. So, if I were to ask you for a  
14 list of that 240 megawatts, you couldn't give it to me  
15 because you don't know whether the number is right?

16 A. I couldn't give it to you because I  
17 can only -- I can give you the total number of projects  
18 that add up to that number.

19 Q. Sorry, I didn't understand.

20 A. I didn't add it up individually, not  
21 because I couldn't, it's just because it's the only  
22 number left on this chart. It could be calculated  
23 because we have project proposals at all sites and I  
24 know the technical potential from Exhibit 82 for all  
25 those sites.

1 Q. If you added that all up, you are  
2 telling us it would come to 240?

3 A. It should, yes.

4 Q. If I asked you this a year ago you  
5 would have said it would add up to 167; wouldn't you?

6 A. That's correct.

7 Q. Same proposals?

8 A. Other than the errors we had in other  
9 parts of this exhibit.

10 Q. Okay. Now, that leads me to the 701  
11 megawatts which used to be 730 megawatts. If you take  
12 a look at that same interrogatory, paragraph C, it asks  
13 about what was then 730 megawatts of things excluded  
14 for other reasons. And the answer says: Look in the  
15 hydraulic plan, you will find the 1,784 megawatts.

16 The 1,730 megawatts is the difference  
17 between the 1,784 total and these various uneconomic  
18 extensions; correct?

19 A. Yes.

20 Q. Okay. And that's now 701 megawatts?

21 A. That's correct.

22 Q. Well, that sounds like that's your  
23 plug figure then.

24 Which figure are you using to balance the  
25 numbers? Is it the 701 megawatts or is it 167, or 240,



1 or whatever?

2 A. I am using the 240 as my last  
3 calculation.

4 Q. All right. So, it says, go to the  
5 hydraulic plan, Exhibit 28, and find two numbers, 796  
6 megawatts and 988 megawatts, and they add up to 1,784?

7 A. I don't know if the Ontario Hydro  
8 hydraulic plan split up the 1,784.

9 Q. Well, let's go look. You take out  
10 Exhibit 28 and you turn to page 9. First I have got to  
11 find it.

12 [12:10 p.m.]

13 Now, page 9 does indeed have the 796  
14 megawatts. You see in the first complete paragraph on  
15 that page it refers to four sites on the Ottawa River,  
16 the total 796 megawatts, and it says that's an  
17 uneconomic extension -- those are uneconomic  
18 extensions; is that right?

19 A. No, as you'll remember in a previous  
20 Interrogatory 6.14.79 the Ottawa River was increased by  
21 29 megawatts since this was issued, so you add that to  
22 the 796.

23 Q. So if you add up those four - I told  
24 you this would be complicated - if you look at those  
25 four in Interrogatory 5.14.273, they total 767, they're

1 listed there; right?

2 If you total them up, they total 767, but  
3 if you add 29, that gets you to the 796; correct?

4 A. I have 843.

5 Q. No, just those four.

6 A. Oh, the hydraulic.

7 Q. Just those four that are named in  
8 Exhibit 28 Chats Falls, Chenaux, Des Joachims and Otto  
9 Holden?

10 A. Those are the Ottawa ones that are  
11 excluded.

12 Q. So if you add those up they total on  
13 this list in 273 -- in 5.14.273, they total 767, but  
14 it's actually 796; right, as in Exhibit 28?

15 A. Yes.

16 Q. Okay. So that's the 796 number.  
17 Interrogatory 5.14.273 says the other number that we  
18 should look for is 988, and if you look a little  
19 farther down that same page you'll see some remote  
20 sites totalling 988 megawatts have been excluded as  
21 only limited data obtained primarily from aerial  
22 photography is available at this time; right?

23 A. That's what it says, yes.

24 Q. Okay. So, out of the 1,784 megawatts  
25 then, 988 megawatts are -- you have limited data, you

1       only have aerial photography?

2                   A. I'm not sure that's true. The number  
3 I'm using is 1,784 and I deduct all Ontario Hydro  
4 stations off of that and the difference is the 701.

5                   Q. Well, doesn't it say in 5.14.273 that  
6 the 1,784 is made up of two numbers, 796 and 988 in  
7 Exhibit 28 and that's these we're looking at; isn't it?

8                   A. That's correct.

9                   Q. So of the 1,784, 988 are sites on  
10 which you only have aerial photography; isn't that what  
11 it says?

12                   A. I'm not sure of the calculation of  
13 that number. To me the hydraulic plan identifies 1,784  
14 megawatts and I have added all those Ontario Hydro  
15 sites that Ontario Hydro is not planning an extension  
16 and that is greater than 796, and I subtracted from  
17 that and got 701. Panel 6 will be in a better position  
18 to comment on the 988.

19                   Q. Do I understand your evidence then to  
20 be that your number, 701, is the right number?

21                   A. All I've done is taken the 1,784 and  
22 subtract Ontario Hydro facilities that I know are not  
23 planned to have extensions.

24                   Q. But isn't that all that's done here?

25                   A. In this write-up it doesn't look like

1 they've mentioned the other hydraulic sites Ontario  
2 Hydro has.

3 THE CHAIRMAN: Did you say the 701 figure  
4 was where Hydro is not planned to have extensions; is  
5 that what you said?

6 MR. BROWN: 701 is what's left after --

7 THE CHAIRMAN: What's the figure where  
8 Hydro does not plan to have extensions as it now exists  
9 in 320?

10 MR. BROWN: 843.

11 THE CHAIRMAN: Okay.

12 MR. SHEPHERD: Q. So you have a total of  
13 1,083 megawatts of uneconomic extensions; right, 843  
14 plus 240?

15 MR. BROWN: A. Yes.

16 Q. And that leaves 701 megawatts left  
17 that you had to exclude because they're excluded in the  
18 hydraulic plan; right?

19 A. That's correct.

20 Q. But in the hydraulic plan they're  
21 excluding them because there's lack of information;  
22 correct?

23 A. That is what is stated.

24 Q. Okay. And they're excluding a larger  
25 number for that reason than you are; correct?

1 A. It says 988.

2 Q. Okay. I guess what it looked like to  
3 me was that you had, the way I calculated it, 287  
4 megawatts of uneconomic extensions for which you only  
5 had aerial photography as information.

6 Obviously that can't be true; can it?

7 THE CHAIRMAN: Where's the 287 from?

8 MR. SHEPHERD: That's 988 minus 701.

9 MR. BROWN: I think this question has  
10 been answered in 6.14.73.

11 MR. SHEPHERD: Q. Oh, okay. 6.14.73  
12 resolves all this stuff?

13 MR. BROWN: A. I don't have the  
14 interrogatory in front of me, I only have the question  
15 and it's addressing the 730 in my NUG plan and 988  
16 which is in the hydraulic plan.

17 Q. Okay. Is 6.14.73 the one we just  
18 gave a number to?

19 THE CHAIRMAN: No.

20 THE REGISTRAR: No. This one will be  
21 321.22.

22 ---EXHIBIT NO. 321.22: Interrogatory No. 6.14.73.

23 MR. SHEPHERD: Q. All right. Will you  
24 agree that your numbers and the numbers in the  
25 hydraulic plan don't match?



1 MR. BROWN: A. In terms of the 988,  
2 that's correct.

3 Q. Okay. And I guess we should ask  
4 Panel 6 if we want more details?

5 A. Yes.

6 Q. Okay, good. Now, you have said that  
7 the 701 is excluded for other economic, environmental  
8 and technical reasons; whereas, the hydraulic plan says  
9 the 988 is excluded because of lack of information.  
10 Should I take it that those two explanations are  
11 essentially the same thing, or are you disagreeing on  
12 why those are excluded?

13 A. No, they're the same.

14 Q. So when you say they're excluded for  
15 economic, environmental and technical reasons, what  
16 you're really saying is you don't have enough  
17 information to know whether they can be developed; is  
18 that correct?

19 A. I'm not saying anything. It's in  
20 Exhibit 28, that explanation.

21 Q. Okay. And that explanation, you only  
22 have aerial photography, that's the correct  
23 explanation?

24 MR. B. CAMPBELL: Well, that's for a  
25 portion, with respect Mr. Shepherd, I think the chart

1 says puts that category on the whole 1,784.

2 In any event, as we tried to explain in  
3 direct, I think the rationale with respect to the  
4 amounts in Exhibit 28 will be spoken to by Panel 6 and  
5 I thought Mr. Brown had been quite clear in his direct  
6 that for NUG purposes his starting point was the 1,252  
7 and that it would be Panel 6 that would be speaking to  
8 those matters coming down.

9 MR. SHEPHERD: Mr. Chairman, I accept Mr.  
10 Campbell's comment, but I had assumed that I could ask  
11 Mr. Brown about situations in which his numbers or his  
12 explanations disagree with the plan that he says it's  
13 based on.

14 THE CHAIRMAN: Well, I think if you have  
15 got any more questions to ask him about it.

16 MR. SHEPHERD: No.

17 THE CHAIRMAN: But you can certainly talk  
18 about 701, 730, I don't see any restriction on that,  
19 where he got the figure from and how he developed it.

20 MR. SHEPHERD: No, I'm actually finished  
21 with that, so...

22 THE CHAIRMAN: All right.

23 MR. SHEPHERD: Q. Oh, actually I do have  
24 one other question on the 701 megawatts. The 701  
25 megawatts is what's left over when you deduct the

1 uneconomic extensions from 1,784; right?

2 MR. BROWN: A. Both the Ontario Hydro  
3 and my estimate of NUG uneconomic extensions for 1,784,  
4 yes.

5 Q. Okay.

6 THE CHAIRMAN: I'm sorry, I shouldn't be  
7 getting into this, I know, but I think you calculate  
8 this 701 before you calculate the 240 you said; is that  
9 right?

10 MR. BROWN: That's true.

11 THE CHAIRMAN: And how do you calculate  
12 the 701?

13 MR. BROWN: It's just a difference  
14 between the -- it's an after the fact calculation  
15 deducting the 1,784 from the 843 of Ontario Hydro  
16 extensions and my calculation of the 240.

17 THE CHAIRMAN: But you said you  
18 calculated the 240 last is what you said?

19 MR. BROWN: Yes, using the 1,784.

20 THE CHAIRMAN: All right. So really what  
21 you're saying is that -- or are you just saying that  
22 you take the 1,784 figure as a given figure and you  
23 take off the 843 uneconomic extensions, and then you  
24 distribute the remainder amongst the other two; is that  
25 what you do?

1 MR. BROWN: Yes.

2 MR. SHEPHERD: Q. And so you can  
3 presumably give us a list of the 240 and the 701?

4 MR. BROWN: A. That's not true.

5 THE CHAIRMAN: How do you make the  
6 distribution, I guess is what I would be interested in  
7 knowing? You've got 941, and how do you break them  
8 down between those two figures?

9 MR. BROWN: The 843 is a site by site  
10 list, it's in Interrogatory 5.14.273.

11 THE CHAIRMAN: So it's a hard number?

12 MR. BROWN: Yes, that's correct.

13 THE CHAIRMAN: All right. And 1,784, I  
14 take it from your evidence, is also a hard number in  
15 your view?

16 MR. BROWN: Yes, it is. To calculate the  
17 240 you have to go to Table A1.8 and go through the  
18 calculations.

19 MR. SHEPHERD: Q. This is of Exhibit 83?

20 MR. BROWN: A. Yes.

21 Q. To calculate the 240 you have to do  
22 what?

23 A. First of all, the new number is  
24 19,900 megawatts, at the bottom.

25 Q. Yes-.

1                   A. Subtract off 7,165 which is all sites  
2     in the Province of Ontario including the northern  
3     rivers that do not have project proposals, that takes  
4     you to the number above that, 12,706 which is what's  
5     listed there. It's actually 12,735.

6                   Subtract from that number all the  
7     in-service and all those in Ontario Hydro's plan which  
8     is listed as 11,945, corrected it is 11,901.

9                   Deduct off what I call the NUG hydraulic  
10    plan for in-service, committed and known projects, the  
11    only other number we don't know is the potential or  
12    extensions not under review.

13                  Q. Well, you know, this is -- I thought  
14    we agreed you did it this way, and...

15                  A. To calculate the 240 I didn't, no;  
16    to calculate the technical potential I followed what  
17    you have on this slide, but to break down some of the  
18    other numbers, I had to go through this exercise that's  
19    on Table A1.8.

20                  Q. Okay. The only real thing I want to  
21    know here is, you can't give us a list of sites that  
22    are included in the 240 or in the 701; can you?

23                  A. I can't give you site by site, no.

24                  Q. And you have no way of knowing; do  
25    you, whether if you did those lists they would come up



1 with those numbers; do you?

2 A. The 701 would have to be addressed in  
3 Panel 6. The 240, I could produce a list of a total of  
4 all the projects with extensions that are not in  
5 proposals.

6 Q. And that would total up to 240?

7 A. Approximately 240, yes.

8 Q. Okay. Well, could you undertake to  
9 do that, then?

10 A. Sure.

11 THE CHAIRMAN: That's 322?

12 REGISTRAR: 322.12.

13 ---UNDERTAKING NO. 322.12: Ontario Hydro undertakes to  
14 provide a list of projects with  
extensions not in proposals.

15 MR. SHEPHERD: Q. Okay. And we will be  
16 able to somehow cross-check that to sites; correct?

17 MR. BROWN: A. I can't give you site  
18 information, all I can give you is the total and the  
19 number of projects.

20 Q. Well, you've already given us the  
21 total, Mr. Brown.

22 A. This is the total using this  
23 calculation. I'm going to give you a total going back  
24 and looking at every site. I can probably give it to  
25 you by watershed, if that's more help.

1 THE CHAIRMAN: Well, you can identify the  
2 sites by A, B, C, D, E and put numbers beside them;  
3 couldn't you do that?

4 MR. BROWN: I could do that.

5 MR. SHEPHERD: Q. Good. All right. So  
6 after all of this you have a number of 1,252 megawatts  
7 and then you have to go to achievable potential and I  
8 guess -- let me start out.

9 Do I understand correctly that you have  
10 done no studies or reports on the achievable potential  
11 of small Hydro in Ontario?

12 MR. BROWN: A. Our report is the 19 --  
13 well, the NUG plan.

14 Q. Aside from the 1990 NUG plan, you've  
15 done no studies or reports on achievable potential;  
16 have you?

17 A. Just the data we have from project  
18 proposals such as was provided in direct evidence.  
19 [12:26 p.m.]

20 Q. Okay. Is there some sort of analysis  
21 or report or somewhere where that is brought together  
22 in an analysis of achievable potential, aside from the  
23 NUG plan?

24 A. No, there isn't.

25 Q. Okay. Now, in the 1990 NUG plan you

1 have projected achievable potential at 251 megawatts  
2 for the year 2000; correct?

3 A. That's correct.

4 Q. That was down 75 megawatts from the  
5 previous year; correct?

6 A. Yes.

7 Q. You are now projecting 170 megawatts,  
8 down another 81 megawatts; is that correct?

9 A. That's our preliminary estimate, yes.

10 Q. Is the reason for that just that you  
11 are learning more about whether projects can go ahead,  
12 or are there things that have happened, external events  
13 that are changing your forecast?

14 A. I think it is a combination of  
15 factors, one of which is we are getting more  
16 information to develop our forecasts on, so that's  
17 improving. Second of all, the environment that these  
18 proponents have to work in is changing as well.

19 Q. In what way?

20 A. It's a negative impact on the  
21 industry.

22 Q. What sorts of things are preventing  
23 these projects from going ahead?

24 A. As I mentioned in my direct,  
25 proponents are having more difficulty obtaining site

1 releases, and it's costing them a lot more.

2 Q. Costing them a lot more to get  
3 approvals?

4 A. There are a lot more studies that  
5 have to be undertaken.

6 Q. Are those the reasons then for both  
7 the drop from '89 to '90 and the drop from '90 to '91  
8 in your projections?

9 A. The preliminary '91 forecast wasn't  
10 based on that. We assumed the same success factor as  
11 we had in the 1990 plan to get that number. The change  
12 in '91 is the fact that a lot of projects are now  
13 becoming inactive and are no longer proposed projects;  
14 they are identified projects.

15 Q. Could you repeat the first part of  
16 that? Maybe I just misunderstood it.

17 A. We are using the same success factors  
18 that we used in the 1990 NUG plan to develop the '91  
19 preliminary estimate that was provided.

20 What has happened is a lot of projects  
21 are becoming inactive and they have been moved from the  
22 "proposed" category to the "identified" category.

23 Q. How do you decide whether they are  
24 inactive? What's your test? How do you determine  
25 that?

1                   A. It's usually up to the proponent.  
2       He's developing the site. If there is no activity in  
3       the last couple of years, we move it down to  
4       "identified".

5                   Q. When you say "no activity" you mean  
6       if they stop talking to you for a while then you assume  
7       that it's gone west, as it were?

8                   A. We have discussions with many people  
9       in the industry, including MNR, the Water Power  
10      Association of Ontario, and get a feel for what's  
11      happening.

12                  NUG proponents themselves come in and --  
13      from time to time whether they are negotiating or not.  
14      If it is proposed I include it in the "proposed"  
15      category. If they're not working on it and we have  
16      that information, I will move it to "identified".

17                  Q. So, if you take a look at Table A1.9  
18      of Exhibit 83, you have got -- let's just take one that  
19      there is a lot of public information on, the one on the  
20      Albany, 15 megawatts under "proposed", okay, and that's  
21      the Nagagami complex, the Nagagami site.

22                  Has that now been moved to "identified"  
23      from "proposed"?

24                  A. I can't give you project-specific  
25      information.



1 Q. Well, Mr. Brown, you listed it in a  
2 public document last year, and you are going to list it  
3 again this year, aren't you?

4 A. In one of the categories, that's  
5 correct.

6 Q. Which category are you going to list  
7 it in?

8 THE CHAIRMAN: First of all, what table  
9 are we at, Al.9? Which one are we looking at?

10 MR. SHEPHERD: Al.9, Mr. Chairman, in the  
11 column that says -- under "Known Projects", it says  
12 "Proposed Projects". If you go down about half-way you  
13 will see one that says 15.000.

14 THE CHAIRMAN: Right.

15 MR. SHEPHERD: And my question was: Q.  
16 In the new plan is that going to be moved over to the  
17 next column, "Identified"?

18 MR. BROWN: A. The 15 megawatts is  
19 expected to remain in the same position.

20 Q. Okay. Thank you. Now, in the 1990  
21 NUG plan you had a total of 594 megawatts of known  
22 projects; correct?

23 A. I don't have the total, but they're  
24 listed in Table Al.9.

25 THE CHAIRMAN: What was the figure?

1 MR. SHEPHERD: 594 megawatts.

2 THE CHAIRMAN: You have 479 in your table  
3 here.

4 MR. BROWN: If you add the committed,  
5 in-service to that I think you will get Mr. Shepherd's  
6 number.

7 MR. SHEPHERD: Q. That's right. That  
8 number is from page 13 of Exhibit 83. Right near the  
9 bottom you say: 594 megawatts, all known types of  
10 NUGs. That is your number; right?

11 MR. BROWN: A. Yes.

12 Q. Now, of that you have 79 in-service  
13 and 36 committed. Let me just try to figure out what  
14 our situation is right now.

15 How much of that 36 megawatts that was  
16 committed is now in-service?

17 A. We have 92 megawatts of in-service  
18 hydraulic right now.

19 Q. At this moment?

20 A. I believe as of September 1st.

21 Q. So, out of your 170 megawatt current  
22 projection, 92 megawatts is in-service; correct?

23 A. Yes. That's correct.

24 Q. So you only need another 78 megawatts  
25 in the next nine years to meet your forecast; correct?

1 A. Yes, that's true.

2 Q. And you had, last year, 479 megawatts  
3 of known projects and 36 megawatts of committed, of  
4 which only 21 megawatts of the committed is still left;  
5 right - 36 minus 15?

6 A. Of those numbers, yes.

7 Q. Okay. You have presently 500  
8 megawatts of known projects?

9 A. If you include all the identified  
10 projects, yes.

11 Q. So you are expecting to get 78  
12 megawatts out of those 500 megawatts?

13 A. That's what our preliminary '91 plan  
14 is showing, yes.

15 Q. That's assuming you get no further  
16 proposals after today for new sites that you haven't  
17 got proposals for now; correct?

18 A. Yes, that's true.

19 Q. Maybe Mr. Mondrow could put up the  
20 next overhead, which is page 6 of Exhibit 326, and we  
21 actually guessed at those numbers so we will have to  
22 correct them.

23 The 100 number listed as "currently  
24 in-service" should be 92; correct?

25 A. Yes. That's correct.

1 Q. Maybe we can change that to 92.

2 And the committed today is 23; is that  
3 right? Can you tell us what the new committed number  
4 is?

5 A. I am just looking it up. 25  
6 megawatts.

7 Q. 25. So my quick math says that you  
8 have 53 megawatts that you are going to get out of the  
9 almost 500 you have left.

10 A. In the "proposed" and in the  
11 "identified" projects, yes.

12 Q. About 11 per cent?

13 A. (Nodding).

14 Q. All right.

15 THE CHAIRMAN: 11 per cent of known  
16 projects, is that what you mean?

17 MR. SHEPHERD: That's right.

18 Q. That doesn't seem like very much. I  
19 am just looking at a bunch of the ones that are  
20 publicly known. You have Nagagami at 15 megawatts.  
21 That's in that 53 somewhere; right?

22 MR. BROWN: A. It's a proposed.

23 Q. Okay. And you have Long Sault.  
24 That's about 15, 20; right? 15? That's in there  
25 somewhere?

1                   A. We have -- I'm not sure of the total  
2       proposed currently in the system. It will add up to a  
3       lot of this 500. Most of the 500 now is identified  
4       projects, not proposed projects.

5                   THE CHAIRMAN: I'm sorry, I can't hear  
6       you. Most of the 500 is what?

7                   MR. BROWN: Is identified projects, not  
8       proposed projects which are under active development.

9                   MR. SHEPHERD: Q. Okay. Now, is the 500  
10      megawatts, is that all of the ones you know about or  
11      all of the ones you officially know about?

12                  MR. BROWN: A. Everything we know we try  
13      and put in here.

14                  Q. So if you have heard or you have  
15      talked to somebody who says they're working on a  
16      development proposal but they haven't actually come  
17      into your office formally to say, "Here's what I am  
18      doing," they're still in your total?

19                  A. I have got phone calls saying, "How  
20      does this river look," or whatever, and I have talked  
21      to people on the phone, and if they have expressed an  
22      interest to develop I will put that in, and I have done  
23      that.

24                  Q. Okay. I guess the reason why I am  
25      surprised is that the 500 megawatts seems so low. You



1 were at the IPPSO conference?

2 A. Just for my presentation.

3 Q. Did you have an opportunity to talk  
4 to any of the small hydro developers?

5 A. I see them day to day in my office.  
6 No, unfortunately, I couldn't stick around at the IPPSO  
7 conference. I had to go to Calgary to deliver another  
8 presentation.

9 Q. Is it fair to say that there are  
10 currently under development or consideration in Ontario  
11 over 300 small hydro sites?

12 A. I'm not sure of that number.

13 Q. Well, you have a list; right?

14 A. I have my list that adds up to 500  
15 megawatts. I am not sure of the number of sites at  
16 this time.

17 Q. Isn't it also true that you have  
18 received proposals from the private sector to buy for  
19 cash small hydro facilities owned by Ontario Hydro in  
20 order to upgrade them?

21 Mr. Vyrostko, isn't that true?

22 MR. VYROSTKO: A. We have had a proposal  
23 like that.

24 THE CHAIRMAN: I'm sorry, I didn't quite  
25 get that answer.

1 MR. VYROSTKO: We have had a proposal  
2 like that.

3 MR. SHEPHERD: Q. You turned it down,  
4 didn't you?

5 MR. VYROSTKO: A. As I mentioned  
6 previously, we have currently a number of hydraulic  
7 sites that are operating, and we in fact evaluate each  
8 of those sites, and if the site is not -- if we do not  
9 consider it of value for us for rehabilitation then we  
10 will turn it over to the private sector.

11 For those sites that we haven't turned  
12 over, obviously we think that there is an advantage for  
13 us to continue with them.

14 Q. All right. Coming back to the 500  
15 megawatts and the 53 megawatts, Mr. Brown, the  
16 conclusion I draw from this - and tell me whether this  
17 is correct - is that of those various developers and  
18 community groups and others who are developing --  
19 trying to develop all of those 500 megawatts of  
20 proposals your estimate is that about 90 per cent of  
21 them are not going to succeed; is that correct?

22 MR. BROWN: A. Based on those numbers?  
23 90 per cent of the megawatts will not proceed, not 90  
24 per cent of developers.

25 Q. Okay. 90 per cent of the megawatts.

1 All right.

2 Is it just that they don't know what they  
3 are doing or they don't have the expertise, or why is  
4 it that they think they can do it and you don't?

5 A. Just my estimate is based on the  
6 process they have to go through and the MNR site  
7 release which allows them to gain access.

8 I am hoping they go through, too. I  
9 tried to show in my direct evidence where the actual  
10 development has far been below my forecast. If this  
11 trend continues -- we are having a look at it right  
12 now. It's tapering off.

13 [12:40 p.m.]

14 Q. It sounds like we should all just  
15 tell all those people not to bother because their  
16 projects have such a low chance of success; isn't that  
17 right?

18 A. I think 170 megawatts is a lot of  
19 megawatts from small hydro, it's very significant and  
20 very important.

21 Q. We are only talking about 53  
22 megawatts; aren't we?

23 A. 53 more.

24 Q. Yes.

25 So far we are talked only about the sites

1 with current known activity; correct?

2 A. In the 500, yes.

3 Q. Well, and in the 53; right?

4 A. In the year 2000 we do not look at  
5 sites that have not been identified.

6 Q. Okay. So, your conclusion then, am I  
7 correct, that you will get 53 megawatts out of the 500  
8 that you know about, and you will get zero out of the  
9 other 700 and change that you don't know whether there  
10 is any activity at?

11 A. By the year 2000, yes.

12 Q. By the year 2000. Zero, not one of  
13 them will proceed?

14 A. On average, zero.

15 Q. On average?

16 A. My analysis is looking at known and  
17 unknown projects. It's quite conceivable that we could  
18 get 1 megawatt that comes in from unidentified that  
19 would replace one that I already knew about that didn't  
20 succeed.

21 Q. Okay. Now, just before I leave this,  
22 you note in Exhibit 83, at page 13 -- no, page 15 --

23 THE CHAIRMAN: 50.

24 MR. SHEPHERD: 15.

25 Q. In the fourth last paragraph, the one

1 that starts out "Economics for Capital Intensive" et  
2 cetera, one of the things that you say is a problem  
3 with small hydro is the high cost of capital; is that  
4 correct?

5 MR. BROWN: A. These types of projects  
6 are very capital cost intensive, a lot of up-front  
7 money required for long payouts.

8 Q. Didn't I hear you say earlier that  
9 reductions in interest rates were one of the reasons  
10 why you are getting more cogen and combined cycle than  
11 you expected?

12 A. That's true.

13 Q. And if you have a more capital  
14 intensive project, shouldn't that effect be  
15 exacerbated? Shouldn't it be a greater positive impact  
16 on small hydro than on cogen?

17 A. That's one of the factors that  
18 affects the development, and it is more positive.

19 Q. All right. So is it fair to conclude  
20 from that then that the lower interest rates this year  
21 mean that the economics of small hydro are improving?

22 A. The economics of these sites should  
23 be better, that's true.

24 Q. Now, the second thing that you  
25 mentioned as a problem with small hydro is site



1 releases from the Ministry of Natural Resources, and  
2 that's something that you are working on in a couple of  
3 areas; isn't that right?

4 A. We have a new initiative to assist  
5 MNR in releasing sites.

6 Q. And that comes out of the MNR task  
7 force on site release that you sat on?

8 A. I didn't particularly sit on it.  
9 Ontario Hydro did, yes.

10 Q. Yes. And you are also supporting a  
11 class environmental assessment to help in that way as  
12 well; right?

13 A. We have funded that process, yes.

14 Q. Okay. But despite those initiatives,  
15 I assume from your numbers now that you are currently  
16 assuming that releases of Crown-owned sites will  
17 continue to be a problem until the year 2000; is that  
18 right?

19 A. My assessment is the development is  
20 going to be slow in this area. Whether or not the  
21 sites are available, or whether or not they are more  
22 economic, the environmental factor I think is the  
23 biggest problem in this area.

24 Q. And you are expecting that barrier to  
25 continue?

1                   A. I wouldn't call it a barrier. The  
2 developers are having a tough time getting site  
3 releases.

4                   Q. Okay. So, despite the actions that  
5 you are taking to try to improve that situation, you  
6 don't expect it to be improved?

7                   A. No. Our forecast is based on Ontario  
8 Hydro trying to do everything we can for this industry.  
9 That's why we support the class EA, that's why we are  
10 trying to help MNR releasing sites. If that was the  
11 only barrier, then things would be taking off.

12                  Q. So, the final one you have talked  
13 about is environmental costs and delays. That's part  
14 and parcel of that same thing; right? That is, you are  
15 trying through the class EA to help that?

16                  A. The class EA will only identify those  
17 studies that need to be done. It doesn't pay for them.  
18 The developer will still have to go out and do those  
19 studies.

20                  Q. But isn't the intent of the class  
21 environmental assessment to streamline the process so  
22 it takes less time and it's more certain?

23                  A. A developer will know ahead of time  
24 how many different studies he is going to have to do  
25 before he starts. That was the problem in the past.

1 Q. That's the only difference?

2 A. My knowledge of the class EA is that  
3 it spells out all of the rules of the game ahead of  
4 time, so there are no surprise along the route. It  
5 still costs money to do those studies and there are  
6 still a lot of studies that are required.

7 Q. Okay. Is it fair to say that  
8 currently one of the biggest issues affecting small  
9 hydro within the broad category of environmental  
10 concerns is the rights and aspirations of Aboriginal  
11 peoples?

12 A. I identified in my direct it's  
13 recreational concerns and landownership are big  
14 concerns in this area.

15 Q. Sorry, are you equating recreational  
16 concerns and landownership with Aboriginal rights?

17 A. No, I am not. I am saying there is a  
18 lot more interest in water power development than there  
19 has been in the past, and one of them is landownership,  
20 another one happens to be recreational.

21 Q. White water canoeing, et cetera?

22 A. That's right.

23 Q. I guess you are aware, maybe you  
24 could confirm whether this is true, that many  
25 Aboriginal groups are currently looking at their own

1 developments of small hydro sites? Is that something  
2 that you are aware of?

3 A. As proponents come to us, I am aware  
4 of some activities. We are working on a program to  
5 promote Aboriginal development of NUG facilities,  
6 mainly hydraulic.

7 Q. But then if that sort of trend - I  
8 don't know whether I can call it a trend, maybe I am  
9 making the same mistake I have been accusing you of  
10 making - if that sort of thing starts to become common,  
11 that is Aboriginal groups doing their own developments,  
12 that would help solve some of those barriers to small  
13 hydro; wouldn't it?

14 A. Where natives are interested in  
15 development, that's true.

16 Q. Isn't that in most areas of Northern  
17 Ontario?

18 A. I can't comment on that.

19 Q. You don't know?

20 A. Some areas they have shown interest,  
21 other areas they haven't.

22 Q. Now, Mr. Vyrostk, maybe this  
23 question is for you. Let's just suppose for a second  
24 that for some magical reason the achievable potential  
25 for small hydro by the year 2000 is 1,000 megawatts

1       instead of 170 megawatts. Isn't it true that given the  
2       number and size of the cogen and fossil projects you  
3       are currently signing up, you are not going to be able  
4       to take that 1,000 megawatts when it's offered; are  
5       you.

6                   MR. VYROSTKO: A. I'm not sure when you  
7       say we can't take it, why we necessarily couldn't take  
8       it.

9                   Q. Haven't you already created a  
10      surplus, as much as you can take, with the activity in  
11      cogen and fossil?

12                  A. I believe when Mr. Snelson talked  
13      about the surplus, he was showing that there was a  
14      surplus around the year 2000. As you know, projects,  
15      especially hydraulic projects, are looked at between  
16      twenty and fifty years. And so, when we are looking at  
17      the economics of the project and the value that it has,  
18      it's not just for three or four year window but a  
19      twenty or fifty year window. So, I wouldn't suggest  
20      that we wouldn't accept those projects.

21                  Q. So, you might accept them and have  
22      surplus capacity in the early years?

23                  A. I believe Mr. Snelson referred to  
24      that in his direct evidence, yes.

25                  Q. Well, Mr. Snelson, maybe you could



1 remind me then because I forget.

2 MR. SNELSON: A. I believe that in my  
3 direct evidence I showed that with current forecasts we  
4 would expect to have surplus capacity for a few years  
5 around the year 2000, assuming that all our programs in  
6 1990s deliver the expected amounts without any delays.

7 Q. Okay. But that is assuming 170  
8 megawatts of small hydro; isn't it?

9 A. It's assuming what is in the current  
10 3,100 megawatt NUG plan.

11 Q. So, I am hypothesizing another 830  
12 megawatts, and are you telling me that you can take  
13 that too?

14 A. It's something we might have to look  
15 at quite carefully. I can't say we couldn't take it,  
16 and I can't say that we could. It would depend to some  
17 degree on where it was located and we did discuss in  
18 direct evidence the regional limitations that may be  
19 imposed by the transmission system.

20 Q. Of course the problem is really  
21 resolved by the avoided cost system, isn't it? That  
22 is, the more surplus you have, the more avoided costs  
23 go down; isn't that right?

24 A. The avoided costs will behave in that  
25 sort of fashion which will tend to reduce surplus in

1 any particular year, yes. It may not completely  
2 eliminate surplus.

3 Q. So, if the problems with small hydro  
4 finally get resolved and we get all this extra small  
5 hydro that some of us hope we get, that might not be  
6 enough; right? The avoided costs might have gone  
7 sufficiently low that they are not economic anymore;  
8 isn't that right?

9 A. Through the design of the project  
10 appraisal avoided cost, that tends to somewhat reduce  
11 the degree to which avoided cost goes down for those  
12 things upon which we are relying. So, the effect you  
13 describe could happen to some extent.

14 Q. Now, of course, one way of dealing  
15 with that would be if small hydro replaced some of your  
16 own hydraulic plans; right?

17 A. If we were in the situation where we  
18 had more from preferred projects, that includes demand  
19 management, hydraulic, cogeneration, if we had more  
20 from preferred projects than we need and that was  
21 creating an unacceptable surplus, then there would have  
22 to be some prioritizing among those preferred options.

23 Q. Is that a yes?

24 A. It's a qualified yes.

25 Q. Fair enough.

1 THE CHAIRMAN: But only prioritizing  
2 within the context of the preferred options and not  
3 taking the others into account, or can you go that far?

4 MR. SNELSON: Well, the hydraulic is a  
5 preferred option, the demand management is preferred,  
6 and the high-efficiency cogeneration, the waste fuels  
7 and the small hydro are preferred options. And so, if  
8 all of those were producing a situation where you had  
9 an unacceptably high surplus, then you might have to  
10 prioritize, and you may have options of mothballing  
11 existing plants, but you would have to look at all  
12 those options.

13 MR. SHEPHERD: Q. But isn't it true, Mr.  
14 Vyrostkco, that the real reason you can't take that  
15 hypothetical 830 megawatts of small hydro is because  
16 you have signed up 1,250 megawatts of gas generation  
17 which isn't a preferred option at all; isn't that true?

18 MR. VYROSTKO: A. No, I don't believe  
19 that is the suggestion there.

20 We have now said that based on some of  
21 these projects that we now want to focus our attention  
22 on the preferred options.

23 There are still the 1,000 megawatts in  
24 the plan for the preferred options. On the assumption  
25 that if they follow the plan as you have gone through

1 with Mr. Brown, then we are looking at 170 megawatts of  
2 hydraulic. But if, all of a sudden, some of these  
3 activities that we carried out with of the government  
4 were to, in fact, facilitate small hydraulic, then that  
5 may develop faster than anticipated and therefore it  
6 may substitute for other ones.

7 Q. For other high-efficiency  
8 cogeneration, for example?

9 A. As an example, it might substitute  
10 for that. Or as Mr. Snelson said, depending on the  
11 where the sites are, in fact it could be in addition to  
12 the existing ones.

13 Q. But then if that were the case we  
14 could expect that there is a possibility that avoided  
15 costs will go down.

16 A. That's a possibility, yes.

17 Q. Now, I guess our previous  
18 discussions, Mr. Brown, were that you don't have any  
19 supply curves for small hydro potential in Ontario.  
20 Did I get your evidence correct there?.

21 MR. BROWN: A. I am only aware of the  
22 general costs of these technologies, I don't have  
23 supply curves per se.

24 [12:55 p.m.]

25 Q. If, for example, a proper supply

1 curve would show that a 10 per cent increase in the  
2 rates you pay for small hydro would produce 2,000  
3 megawatts of achievable potential by the year 2000, you  
4 don't have any evidence to give on whether that would  
5 be correct or not; do you?

6 A. I can only show on past experience  
7 where the costs have gone up over the last several  
8 years and the development has actually been decreasing.

9 Q. All right. So if this Board wished  
10 to consider the idea that it might be worth 10 per cent  
11 to replace 2,000 megawatts of large hydro or even 2,000  
12 megawatts of fossil NUGS with small hydro, the only  
13 assistance you can provide then is, in the past price  
14 hasn't made a difference; right?

15 A. That's the trend so far.

16 Q. Okay.

17 THE CHAIRMAN: I'm sorry, I didn't hear  
18 that.

19 MR. BROWN: Small hydro at the present  
20 time is not that sensitive to the price ranges we're  
21 talking about.

22 MR. SHEPHERD: Q. So you haven't done a  
23 supply curve to determine that?

24 MR. BROWN: A. No, my forecast is based  
25 on project activity which is a function of the price.



1 Q. Mr. Vyrostkco, isn't it in fact true  
2 that the reason you've reduced the achievable potential  
3 for small hydro is that you've been reducing the rates  
4 you offer to small hydro developers, developers over 5  
5 megawatts, for the last two years, at the same time as  
6 you've been increasing the rates you offer to  
7 cogenerators; isn't that in fact true?

8 MR. VYROSTKO: A. No, that's not true at  
9 all. I believe the rates have been going up in the  
10 last two years to the projects for small hydro.

11 Q. Well then, I would ask you if you  
12 could please table for this Board a list of all current  
13 and past rate offers for NUG projects broken down into  
14 small hydro and thermal and by time frame so we can see  
15 what your rate offers have been on a project by project  
16 basis and whether they have, in fact, gone down in one  
17 case and up in the other.

18 Could you provide a table like that?

19 MR. B. CAMPBELL: Just one moment. I  
20 think it's clear that we're not prepared to do that,  
21 provide that information on a project by project basis  
22 for the kinds of reasons that have already been  
23 discussed at the beginning of this panel.

24 THE CHAIRMAN: Even if the projects  
25 aren't identified?

1 MR. B. CAMPBELL: It may be possible to  
2 aggregate the information in some way.

3 THE CHAIRMAN: Symbolizing the projects  
4 by letters or numbers or something like that, without  
5 identifying them?

6 MR. B. CAMPBELL: I can advise you, Mr.  
7 Chairman, that when we considered that kind of option  
8 prior to this panel with respect to some of the  
9 information, the problem is that some of these things  
10 are sufficiently unique that as soon as you know the  
11 project size it would be apparent to someone in the  
12 industry what the particular project was, which is why  
13 I speak of aggregation. Doing it on a detailed project  
14 by project basis, even without names, as I understand  
15 it, is not sufficient.

16 MR. SHEPHERD: Mr. Chairman, I'm prepared  
17 to pursue this without the list, if they can't provide  
18 it.

19 THE CHAIRMAN: All right.

20 MR. SHEPHERD: And just before lunch, can  
21 I table an exhibit so they'll have a chance to look at  
22 it over lunch.

23 Dr. Connell, sorry, I was interrupting  
24 you.

25 DR. CONNELL: I was simply going to

1 suggest the alternative of a time series set off by  
2 quarter in which you could aggregate projects within  
3 quarters.

4 MR. B. CAMPBELL: I think I would really  
5 need to obtain instructions on that. It's very  
6 difficult for me to deal with it just in the abstract  
7 as to whether that achieves the necessary objective.

8 MR. SHEPHERD: Mr. Chairman, I would like  
9 to file an exhibit.

10 THE REGISTRAR: It will be No. 330.

11 THE CHAIRMAN: 33...?

12 THE REGISTRAR: 330. I apologize 300.  
13 I was right the first time. Forgive me, Mr. Chairman,  
14 330.

15 MR. SHEPHERD: Mr. Chairman, this is an  
16 exhibit comparing the February system incremental costs  
17 and August system incremental costs for two sample.  
18 projects.

19 ---EXHIBIT NO. 330: Document comparing February  
20 system incremental costs and  
21 August system incremental costs  
for two sample projects.

22 MR. SHEPHERD: I'm deliberately filing it  
23 now, because I wasn't in fact sure I was going to use  
24 it, but I'm filing it now so that the witnesses will  
25 have a chance over lunch to take look at it and then

1 I'll ask questions about it after lunch.

2 THE CHAIRMAN: Right. We will adjourn  
3 now until 2:30.

4 THE REGISTRAR: This hearing will adjourn  
5 until 2:30.

6 ---Luncheon recess at 1:02 p.m.

7 ---On resuming at 2:35 p.m.

8 THE REGISTRAR: Please come to order.  
9 This hearing is again in session. Be seated, please.

10 MR. B. CAMPBELL: Mr. Chairman, in  
11 looking at the material that constitutes Exhibit 330  
12 and Exhibit 328, which is the material that --

13 THE CHAIRMAN: Let me just turn up 328.

14 MR. B. CAMPBELL: 328 was to have been a  
15 restatement of certain portions of the SICs filed in  
16 Exhibit 309 in the same format as Exhibit 175, or vice  
17 versa.

18 THE CHAIRMAN: Has 320 been filed yet?

19 MR. B. CAMPBELL: 328?

20 THE CHAIRMAN: Yes.

21 MR. B. CAMPBELL: Yes. Yes, it was filed  
22 this morning. It consists of one --

23 THE CHAIRMAN: Oh yes, I remember that.

24 MR. B. CAMPBELL: And it's got two tables  
25 attached to it which is a restatement of certain

1 information.

2 THE CHAIRMAN: I've got it. Thank you.

3 MR. B. CAMPBELL: It would appear in the  
4 project appraisal numbers, which are the last page of  
5 Exhibit 328, there has, at a minimum, been a mix up in  
6 various columns, and we're not quite sure whether  
7 that's all of the problem with that page, and that work  
8 is going on right now to check that, but it is quite  
9 clear that there's a column, at least in terms of the  
10 numbers, there's some numbers in there under one column  
11 where nobody's quite sure where they came from and  
12 there's shifting of columns as between different  
13 headings and, the work having been done to use those  
14 numbers in Exhibit 330, of course, the numbers in 330  
15 then that relied on this will also have to be redone  
16 once we're able to provide corrected numbers.

17 I've spoken to my friend Mr. Shepherd  
18 over the lunch break. We will do our utmost to try and  
19 provide revised numbers, hopefully by tomorrow morning,  
20 and I guess I'll find out tomorrow morning whether  
21 that's been possible.

22 And we are also, having looked at this  
23 afternoon Exhibit 330, Mr. Shepherd has asked us to  
24 look at that from a viewpoint as to whether the  
25 calculations -- the method of calculations that is



1 reflected in Exhibit 330 is acceptable to Hydro.

2 Again, that's being looked at this afternoon.

3 What I propose to do is to try and catch  
4 Mr. Shepherd perhaps by 9:30 tomorrow morning and  
5 advise him as to what all of our progress has been on  
6 all this to date.

7 Obviously the error was on our part and  
8 we apologize that it will cause some inconvenience, but  
9 that's how we're trying to address it.

10 THE CHAIRMAN: All right. What does that  
11 do to the cross-examination at this point?

12 MR. SHEPHERD: Mr. Chairman, could I have  
13 just a second with Mr. Campbell?

14 THE CHAIRMAN: Certainly.

15 MR. SHEPHERD: Mr. Chairman, I was just  
16 checking with Mr. Campbell whether these numbers could  
17 be -- the corrected numbers could be provided to us  
18 late tonight, because we will be around late and it  
19 takes a while to redo Exhibit 330, as you can imagine.

20 And I can report that Hydro is going to  
21 do the best they can. If they provide them tonight,  
22 then it will not affect our cross-examination, I have  
23 already agreed with Mr. Campbell that questions on  
24 Exhibit 330 will be deferred until tomorrow until we  
25 have it corrected.

1                   If they're not provided until tomorrow  
2 morning, I think we will have to deal with that  
3 tomorrow morning.

4                   THE CHAIRMAN: Well, I take it that all  
5 this goes to your general thesis, as said in your  
6 abstract, that the changes generally benefit large  
7 cogen projects and hurt small hydro projects, it's all  
8 directed from that general area, I take it?

9                   MR. SHEPHERD: That's correct, Mr.  
10 Chairman.

11                  THE CHAIRMAN: It just occurs to me that  
12 more haste less speed sometime works if everyone -- I  
13 think one of the reasons that this latest Exhibit 328,  
14 was it, wasn't correct may have been because it was  
15 prepared in haste.

16                  MR. SHEPHERD: That may well be the case,  
17 sir.

18                  THE CHAIRMAN: I don't know what follows  
19 out of it, but I suggest that perhaps if it could be a  
20 discrete element of your examination, it might be  
21 deferred until a later time in this panel which would  
22 then give everybody a chance to look at the figures and  
23 perhaps have a better idea of what they imply.

24                  MR. SHEPHERD: That's quite satisfactory,  
25 Mr. Chairman.

1 THE CHAIRMAN: Would that be all right,  
2 Mr. Campbell?

3 MR. B. CAMPBELL: Yes, if it's a discrete  
4 unit and I think that certainly would give our people  
5 an opportunity to both satisfy themselves more  
6 thoroughly on the methodology which -- I was going to  
7 say, we may be able to get the Exhibit 328 numbers  
8 sorted out.

9 If we put our priority on that, I don't  
10 know where that leads. I'll look at the methodology in  
11 terms of tomorrow's schedule with that approach, and I  
12 think would be quite satisfactory from our point of  
13 view.

14 MR. SHEPHERD: All right, that's fine.

15 THE CHAIRMAN: If that's satisfactory, it  
16 might be easier for everybody to do it that way and  
17 there wouldn't be -- I think perhaps time saving as  
18 well, of the hearing time.

19 MR. SHEPHERD: I was hoping I wouldn't  
20 have to come back on any issues after I was finished  
21 tomorrow, but I guess that was...

22 THE CHAIRMAN: Well, I sense I'm giving  
23 you the choice.

24 MR. SHEPHERD: Oh no, I'm --

25 THE CHAIRMAN: I mean, if Mr. Campbell

1 has said he'll get it for you and if you think you can  
2 handle that, that's fine with me. I just thought that  
3 it might be better for you to have some time to work on  
4 the figures that they present.

5 MR. SHEPHERD: My comment, Mr. Chairman,  
6 was intended to be that it was a faint hope at the best  
7 of it anyway.

8 On the outline, Mr. Chairman, we're now  
9 finished potential for hydraulic and we are proceeding  
10 to potential other, forecast other, which is a  
11 relatively short topic and then we will get into the  
12 contracting process and how that affects things.

13 Q. Mr. Brown, I guess this is for you.  
14 Before we leave your forecast altogether, I understand  
15 your direct evidence to be that you don't include in  
16 your NUG plan any of the various alternate technologies  
17 like biogas or peat or wind or solar or any of those  
18 sorts of things?

19 MR. BROWN: A. They are not included in  
20 the 1990 NUG plan.

21 Q. And your current intention is to  
22 include 300 -- sorry, 200 megawatts of those in the  
23 1991 NUG plan; right?

24 A. We're looking at contribution after  
25 the year 2,000 from some alternate technologies.

1 THE CHAIRMAN: And is the 200 a rough  
2 figure you're talking about?

3 MR. BROWN: It's just a ballpark number.

4 THE CHAIRMAN: Yes. And that would be  
5 between 2000 and the end of the planning period?

6 MR. BROWN: That is correct.

7 MR. SHEPHERD: Q. 2,000 or 200?

8 MR. BROWN: A. The year 2000 to the end  
9 of the planning period.

10 Q. Oh, sorry. Not alert enough here. I  
11 just want to ask a couple of questions about those. We  
12 have dealt with sewage gas and digester gas and  
13 agricultural methanes a few minutes ago, and I take  
14 your testimony to be that you have no idea what the  
15 technical or achievable potential of those is right  
16 now; is that correct?

17 A. In terms of the technical potential,  
18 that's correct.

19 Q. And your assessment of achievable  
20 potential is currently...?

21 A. Based on project information, we  
22 would expect to see very little contribution in those  
23 areas.

24 Q. Now, I understand -- moving to peat,  
25 I understand that you have one project proposal or at



1 least one project proposal before you right now that  
2 would burn peat to produce electricity; isn't that  
3 right?

4 A. We have had several peat proposals.

5 Q. How much capacity are we talking  
6 about in those proposals?

7 A. In total.

8 Q. Yes, just ballpark?

9 A. Almost 200 megawatts.

10 Q. And, again, with respect to your  
11 previous testimony, I take it that you haven't yet  
12 analyzed the potential, whether technical or  
13 achievable, for peat power production in Ontario; is  
14 that right?

15 A. Technical potential for peat will be  
16 addressed in Panel 8.

17 Q. But it will still be non-utility  
18 generation?

19 A. Developed by that industry, yes.

20 Q. Okay. And so at some point you've  
21 got to know what that technical potential number is to  
22 put it in your NUG plan; right?

23 A. Yes.

24 Q. But you're not going to be doing the  
25 technical potential analysis; is that...

1 A. It's being handled by another panel.

2 Q. Well no, I guess my question is: I  
3 understand that the discussion of it will be in Panel  
4 8, my question is: When you do your NUG plan, are you  
5 going to do the analysis of that potential or is  
6 somebody else within Ontario Hydro going to do it?

7 A. In the 1991 NUG plan, I will look at  
8 all technologies that I expect will have a contribution  
9 of 5 megawatts or more over the planning period.

10 [2:44 p.m.]

11 Q. And will that be peat?

12 A. At this time I don't expect so.

13 Q. So despite the fact that you have 200  
14 megawatts of proposals you are anticipating that the  
15 actual contribution of peat to generation over the next  
16 twenty five years will be under 5 megawatts?

17 A. That is correct.

18 Q. Is it true that Ontario has more  
19 usable peat than anywhere else in the world?

20 A. I'm not sure of the quantity. There  
21 is a lot of peat in Ontario, northern Ontario.

22 Q. Given the project proposals that you  
23 have seen currently, is it fair to say that the  
24 economics of peat generation are at least close right  
25 now?

1 A. No, they're not.

2 Q. Not even close? So then, if there  
3 were let's say a small increase in prices or let's say  
4 there was a small improvement in technology relating to  
5 peat, do I take it that you would still conclude that  
6 there would be very little because the economics aren't  
7 closed?

8 A. That's true.

9 Q. And you have done some sort of study  
10 to look at peat generation to form these conclusions?

11 A. We have another group in Ontario  
12 Hydro called Alternate Technologies that keeps up to  
13 speed on various technologies and their costs, and I am  
14 in contact with them quite frequently.

15 Q. Where is that group? What branch and  
16 division is it in?

17 A. They're in design and construction.

18 Q. Design and construction? That's the  
19 branch that is responsible for building new Ontario  
20 Hydro-owned stations; correct?

21 A. Other people in their branch areas,  
22 yes.

23 Q. That's the main function of that  
24 branch?

25 A. Yes.

1 Q. To build stations?

2 A. Yes.

3 Q. This isn't on my list, but it does  
4 strike me as strange that that group which presumably  
5 deals mainly with NUG-type projects would be in design  
6 and construction rather than in your division. Is that  
7 just happenstance or is there some reason for it?

8 A. They have a mandate to follow all  
9 technologies that may have potential for producing  
10 generation, whether it's the private sector or Ontario  
11 Hydro.

12 Q. Mr. Vyrostkco, have there been any  
13 discussions internally at Hydro as to who should have  
14 responsibility for looking at alternate technologies?

15 MR. VYROSTKO: A. I think what we have  
16 been trying to do in Hydro is to focus our attention on  
17 the entire area of alternate technology and to then try  
18 from a corporate perspective to have programs and  
19 initiatives that would in fact cover off the entire  
20 spectrum of utility-owned or -constructed facilities as  
21 well as non-utility generation.

22 So basically what we are saying is that  
23 we have now, I believe, an opportunity -- we are  
24 looking at initiatives, this alternative technology  
25 initiative, that will bring a corporate focus to all of

1 the activities.

2 Q. And that's not a NUG division issue?

3 A. Yes. In fact, Mr. Brown was talking  
4 about one of his programs in direct evidence saying we  
5 have got an alternate technology program, and part of  
6 that program is to, you know, be on the group that  
7 provides us overall corporate focus.

8 Q. It's Hydro's general view today,  
9 isn't it, that aside from possible private sector  
10 development of alternate technologies there is no  
11 expectation that alternate technologies will in the  
12 foreseeable future be the basis for central generating  
13 facilities; isn't that right?

14 A. I can't answer that. I know that one  
15 of the reasons why the group has in fact been around  
16 for many years is looking at whether there are  
17 breakthroughs on that type of technology for utilities.

18 You know, we have been involved in some  
19 specific activities, whether it is up at the Fort  
20 Severn or even at the Cortwright Centre trying to look  
21 at opportunities both for today and for the future.

22 Q. Let me turn to wind energy.

23 MR. B. CAMPBELL: Mr. Chairman, in  
24 fairness to my friend, I think I should be clear that  
25 some of these things are all addressed and the current



1 information has been gathered together in this document  
2 that I keep referring to that I keep trying to extract  
3 from Printing, and it will go through these things, and  
4 it deals with potential and there are some  
5 technologies, if my recollection is correct, that are  
6 looked at from the larger project point of view than  
7 whether that is done by non-utility generators or  
8 Ontario Hydro.

9 But these are a range of generation  
10 technologies, and some of these kinds of questions I  
11 know are dealt with in this thing that is in Printing,  
12 and it will be extracted as soon as we can from that.

13 But just in fairness to my friend, I  
14 thought I should just make that clear.

15 MR. SHEPHERD: I am not intending, Mr.  
16 Chairman, to ask detailed questions about any of these  
17 technologies. I understand that that is Panel 8.

18 Q. Mr. Brown, you did make the decision  
19 to exclude all of these technologies from your 1990 NUG  
20 plan, didn't you?

21 MR. BROWN: A. Yes, I did.

22 Q. Do you agree, Mr. Brown, that  
23 currently grid connected wind energy is simply not  
24 economically feasible in Ontario?

25 A. The information I have seen points

1 that they are well above avoided cost.

2 Q. And have you done any studies to back  
3 up that conclusion?

4 A. It's based on a study I mentioned  
5 earlier by Can WEA, which identified that at over 7  
6 cents we could get about 30 megawatts of potential in  
7 Ontario.

8 Q. You don't follow this at all  
9 directly, right; your alternate technologies group  
10 follows it?

11 A. I am becoming more active in this  
12 area.

13 Q. Are you familiar with the approved 10  
14 megawatt wind facility in Alberta?

15 A. Yes. Pincher Creek?

16 Q. Pincher Creek.

17 A. I am just aware that there is a test  
18 facility going in there.

19 Q. Do you have any idea what sort of  
20 rates it's being built at; that is, what sort of prices  
21 are being paid for it?

22 A. No, I'm not.

23 Q. Do you know what the term "IDR"  
24 refers to in avoided cost calculations in California?  
25 Maybe Mr. Vyrostk would be more familiar with this.

1 A. I'm not.

2 MR. VYROSTKO: A. I'm not familiar with  
3 that term.

4 Q. Will you accept, subject to check,  
5 that "IDR" means "Identified Deferrable Resource",  
6 equivalent to a proxy plant?

7 THE CHAIRMAN: Identified...?

8 MR. SHEPHERD: Deferrable resource.

9 Q. Will you accept that, subject to  
10 check?

11 MR. VYROSTKO: A. Yes, I guess. Sure.

12 Q. And that it refers to a planned,  
13 utility-owned supply option that the utility will build  
14 if non-utility generators don't come in with offers  
15 beneath the cost of that resource?

16 A. Again, I can't say one way or the  
17 other. I'm not familiar with it. So you are  
18 suggesting that that's what it is?

19 Q. You are familiar with the concept of  
20 a proxy unit?

21 A. Yes, I am.

22 Q. My description is similar to what you  
23 might call a proxy unit, isn't it?

24 A. Okay.

25 Q. Okay. Maybe I should call it "proxy

1 unit" if you are more familiar with that term.

2 Were you aware that the current proxy  
3 unit for Pacific Gas & Electric is a wind farm at 4-1/2  
4 cents a kilowatthour?

5 A. I am not.

6 Q. You are aware, I take it, of the  
7 thousands of megawatts of wind energy in California and  
8 in Denmark?

9 A. I am aware of I think hundreds of  
10 megawatts in California and others in Denmark, yes.

11 Q. Again, Mr. Brown, as with these other  
12 areas, you haven't done any supply curves or any  
13 analysis of your own to see at what price you would  
14 start to get wind, except for this Can WEA study you  
15 referred to?

16 MR. BROWN: A. I believe information  
17 generally known is that wind energy is 7 to 8 cents, so  
18 a supply curve would start around that area based on  
19 current technology, although in wind the technology is  
20 improving.

21 Q. When you say "generally known" --

22 A. Pardon?

23 Q. When you say "generally known", this  
24 is like an accepted technical fact?

25 A. Just from publications you see,

1 referring to very high numbers required for wind  
2 generation.

3 Q. So if the proxy unit of PG&E were in  
4 fact 4-1/2 cents a kilowatthour for wind that would be  
5 a surprise to you, wouldn't it?

6 A. I'm not sure if they're a proxy  
7 plant. I know there is a lot of work being done in  
8 California to improve the economics of wind for those  
9 areas, and they're looking at 5 cents U.S. the last I  
10 heard.

11 Q. So about 5.8 cents Canadian?

12 A. That was their goal.

13 Q. That is pretty close to the sort of  
14 range you can offer for preferred projects, isn't it?

15 A. With our project appraisal costs and  
16 a 10 per cent premium for renewables, I think that's  
17 close.

18 MR. SNELSON: A. Mr. Shepherd, perhaps I  
19 can add something here.

20 You are of course aware that the costs of  
21 wind energy are very heavily dependent on average wind  
22 speeds and wind regimes.

23 Q. Yes.

24 A. It's dangerous to draw conclusions  
25 about the cost of wind energy in Ontario from the cost



1 of wind energy other places that may have more or less  
2 wind than Ontario.

3 Q. Do I take it from what you are saying  
4 that Ontario doesn't have any sites with good wind  
5 regimes that could achieve those sorts of numbers?

6 A. I think we have quite limited sites  
7 with good wind regimes, and that's discussed in the  
8 document to which Mr. Campbell is referring.

9 Q. That's the only study you have on  
10 this, is that document that we haven't seen yet?

11 A. I think there have been earlier  
12 studies of wind energy resources in Ontario.

13 Q. Have we seen those? Are they tabled?

14 MR. BROWN: A. I am referring to again  
15 this Can WEA report I mentioned earlier.

16 Q. That's the only one?

17 A. Hydro has done studies, I believe, up  
18 at Fort Severn on wind.

19 Q. Fort Severn isn't on the grid, is it?

20 A. No, but it's one of the best wind  
21 locations there is in Ontario.

22 Q. And you have some sort of study that  
23 says it's one of the best wind locations?

24 A. Well, that's also identified in the  
25 Can WEA report. Anything off that coast is a good

1 spot.

2 Q. Has that Can WEA report been filed  
3 somewhere in these proceedings?

4 A. I wouldn't think so.

5 Q. Why don't we get it filed? Could you  
6 undertake to file it, do you mind? It's not secret or  
7 anything?

8 A. No, it's a Canadian Government study.

9 MR. B. CAMPBELL: It has been publicly  
10 released?

11 MR. BROWN: Yes.

12 MR. B. CAMPBELL: Again, subject to  
13 finding out reasons that I am currently unaware of, I  
14 gather it's a publicly released Federal Government  
15 document, so that shouldn't be a problem.

16 THE REGISTRAR: No. 322.13.

17 ---UNDERTAKING NO. 322.13: Ontario Hydro undertakes to  
18 provide the Federal Government study  
done by Can WEA re wind technology.

19 MR. SHEPHERD: Q. Last but not least,  
20 solar, and of course I will leave most of this to my  
21 friend, Mr. Grenville-Wood.

22 Is it fair to say, Mr. Brown, that  
23 hundreds of megawatts of solar non-utility generation  
24 currently exist in the world?

25 MR. BROWN: A. 10s, I think.

1 Q. 10s of megawatts or hundreds of  
2 megawatts?

3 A. I believe worldwide it's 100 to 200.  
4 That would include a lot of remote locations as well.

5 Q. Isn't it true, Mr. Brown, that one  
6 company alone in California has 300 megawatts on-line?  
7 Isn't that right? Luz?

8 A. Oh, that's solar/thermal. I was  
9 talking about PV solar.

10 Q. Well, it's still solar; right?  
11 [3:00 p.m.]

12 A. It's solar heating rather than  
13 producing electricity from straight conversion of  
14 sunlight.

15 Q. The Luz project, the 300 megawatts of  
16 Luz projects, they are in fact producing electricity  
17 right this minute as we speak?

18 A. In the desert, yes, using various  
19 steam technologies.

20 Q. Okay. Is there going to be some sort  
21 of analysis of the potential for solar energy in  
22 Ontario in that study that's coming out?

23 A. It identifies both passive and direct  
24 conversion of technologies. Passive meaning heating of  
25 water and PV, just using solar cells.

1 Q. Passive means the heating of water?

2 Maybe I should ask another question. Are  
3 you familiar with solar technologies, Mr. Brown?

4 A. There is two technologies that are  
5 used to produce electricity, one is where you are  
6 heating up a fluid to go through a turbine and another  
7 is using photoelectric cells, and the one that is the  
8 most dominant in megawatts in California is desert  
9 locations where they are heating fluid using mirrors or  
10 troughs to produce steam and drive a turbine, usually  
11 supplemented with natural gas for other times of the  
12 day.

13 Photovoltaic technology is not as far  
14 advanced and a lot more expensive.

15 Q. That first technology you were  
16 talking about, heating of fluids, that's not called  
17 passive at all; is it?

18 A. Maybe I mixed my terms up.

19 Q. Passive solar, am I correct that  
20 passive solar refers to building design and window  
21 design and things like that, a conservation type of  
22 measure?

23 A. Yes.

24 Q. And what you were talking about is  
25 called solar thermal; isn't that right?

1 A. Yes.

2 Q. I guess I am back to you, Mr.

3 Vyrostko. I would like to spend a few minutes going  
4 through the interaction between your division and  
5 developers when contract negotiations are taking place.

6 I take it from your direct evidence that  
7 over 5 megawatt projects have to date been going  
8 through two separate process. You have the request for  
9 proposals on the one hand, the RFP process, and then  
10 you have the walk-in process, if you like, the open  
11 door process; is that correct?

12 MR. VYROSTKO: A. The actual process is  
13 the same for both.

14 The way we acquire or the way we  
15 communicate the opportunity was different. With the  
16 RFP we actually went out proactively soliciting  
17 activities. Prior to that it was an open door and  
18 subsequent to that it has been an open door.

19 So, the way projects come into our shop  
20 is either solicited or not, but once they come into the  
21 shop they are treated the same.

22 Q. Now, did I understand your evidence  
23 the other day correctly that you now have in effect a  
24 moratorium on new projects, or have I misunderstood  
25 that?



1 A. I would think it's a moratorium, yes,  
2 but that's only for cogeneration projects.

3 Q. It's only for cogeneration?

4 A. That's correct.

5 Q. And wood waste?

6 A. Not if it's straight wood waste, no.

7 Q. As soon as it includes any natural  
8 gas though it's in your moratorium; right?

9 A. Again, if it's a cogen and if it's --  
10 that's right, if it's one that's using natural gas as  
11 well, then it would be considered right now in a  
12 moratorium.

13 Q. So, the only things you are taking  
14 right now are landfill gas and small hydro and a pure  
15 wood waste?

16 A. Again, when you say we are taking  
17 right now, we are looking at a moratorium for probably  
18 a month. So, it's nothing -- we are not looking at a  
19 long period of time here at all.

20 Q. This is just to get your definition  
21 straight?

22 A. That's correct.

23 Q. So, I take it from what you have said  
24 then, that although the RFP brought people in a  
25 different way, once people get in the door whether

1 through the RFP or through the walk-in process, prior  
2 to the moratorium, the process of how they deal with  
3 you is the same?

4 A. I believe so, yes.

5 Q. Okay. Just before we go into that  
6 process, we talked a little bit about the RFP. I  
7 understand you to say that you got a total of 6,500  
8 megawatts of proposals under the RFP?

9 A. That's correct.

10 Q. And you got some more subsequently  
11 which you included under the RFP; isn't that correct?

12 A. I don't believe so.

13 Q. All right. So the 6,500 megawatts  
14 then was the gross number. Now you whittled that down  
15 to a total of about 1,900 megawatts; correct?

16 A. I believe that's around the number,  
17 yes.

18 Q. So you had about 4,600 megawatts that  
19 you eliminated?

20 A. That were eliminated as opposed to  
21 what we necessarily eliminated.

22 Q. Fair, fair. And you have talked  
23 about the three reasons I think you gave, Mr. Brown,  
24 for how you -- sorry, not how you -- how projects were  
25 eliminated from the 6,500? It was economics,

1 transmission, ability to interconnect to the grid and  
2 one other, I don't remember what the other was. Oh,  
3 number of projects per developer.

4 A. I believe I said those this morning.

5 Q. And that's the ways that you took  
6 projects out; right?

7 A. Those were, amongst others, yes.

8 Q. There were other reasons why projects  
9 dropped out?

10 MR. B. CAMPBELL: Is that a question?

11 MR. SHEPHERD: Yes, that is a question.

12 MR. VYROSTKO: I guess offhand right now  
13 I can't think of any others.

14 MR. SHEPHERD: Q. Okay. There were  
15 basically three main technologies within that 4,600  
16 megawatts, correct, cogen, combined cycle and peat; is  
17 that right? Sorry, and tires, I guess, that was  
18 another big one; right?

19 MR. VYROSTKO: A. No.

20 Q. No?

21 A. The two largest percentaged projects  
22 were natural gas and peat.

23 Q. Natural gas being combined cycle  
24 essentially or CTUs?

25 A. It would be cogeneration or straight

1 electricity producing.

2 THE CHAIRMAN: Natural gas, cogen or  
3 straight electricity producing?

4 MR. VYROSTKO: Yes.

5 MR. SHEPHERD: Q. I wonder if you could  
6 just split out for me, I won't ask you to do it here, I  
7 know it's hard to do the numbers right here, but I  
8 wonder if you could split out for us the numbers of  
9 projects and megawatts by the reason why they dropped  
10 out, by technology?

11 THE CHAIRMAN: Are you talking 1,900 now?

12 MR. SHEPHERD: No, this is the 4,600  
13 megawatts that has been taken out.

14 THE CHAIRMAN: Oh, I'm sorry.

15 MR. SHEPHERD: Q. Could you have give us  
16 a chart like that?

17 MR. VYROSTKO: A. Broken down again by  
18 which categories?

19 Q. In one direction by the technology,  
20 cogen, major supply NUG, peat, and in the other by the  
21 reason, one of those three reasons that they dropped  
22 out. Is that possible?

23 A. I think that in some cases it might  
24 be discussing some things of the project that not be  
25 maybe public.

1 Q. I am just asking for totals though.

2 A. Well, no. If you are looking at some  
3 technologies, some of them are just single  
4 technologies, so automatically if you are looking at  
5 the one project, let's take the example of rubber tire,  
6 if all of a sudden it came in at, let's use the example  
7 uneconomic, then in fact what you have now done is  
8 talked about some elements of the project that the  
9 proponent may not want discussed.

10 Q. But I guess rubber tires is the only  
11 category in which you have only one proposal; right?

12 A. No. There is a number of them.

13 Q. You have more than one cogen  
14 proposal?

15 A. Yes.

16 Q. You have more than one combined cycle  
17 or CTU proposal?

18 A. I said more than one natural gas,  
19 which is both straight electricity production and  
20 cogen.

21 Q. But that isn't what I asked. Do you  
22 have more than one cogen?

23 A. Yes, we do.

24 Q. Did you have more than one combined  
25 cycle or CTU?



1 A. Yes, we do.

2 Q. Do you have more than one peat?

3 A. Yes.

4 Q. So, on those three categories you  
5 don't have any problem with confidentiality; right?

6 A. No, in those categories.

7 Q. So if we drop off the rubber tires,  
8 can you prepare a chart like I have asked for?

9 A. I think I can.

10 Q. Thank you.

11 THE REGISTRAR: That will be Undertaking  
12 322.14.

13 MR. B. CAMPBELL: That is fine.

14 Mr. Chairman, just out of an abundance of  
15 caution, if we do have any difficulties with that we  
16 will of course come back to the Board.

17 MR. SHEPHERD: No problem.

18 THE CHAIRMAN: And there may be other  
19 technologies that haven't been mentioned, I take it,  
20 rather than gas, peat and tires, that form part of the  
21 4,600.

22 MR. VYROSTKO: Again, there is a number  
23 of other fuel types in there but not necessarily  
24 technologies. So, I think by technology breakdown we  
25 might be okay with that one.

1 THE CHAIRMAN: Okay.

2 ---UNDERTAKING NO. 322.14: Ontario Hydro undertakes to  
3 provide for the 4,600 megawatts of  
4 proposals that have dropped out, a split  
5 out of the numbers of projects and  
6 megawatts, and the reason why they  
7 dropped out, by technology.

8 MR. SHEPHERD: Q. Certainly the chart I  
9 have asked for is going to give us the bulk of the  
10 4,600 megawatts; isn't it?

11 MR. VYROSTKO: A. It should.

12 Q. Okay. Now, have all the proponents  
13 of those other projects, have they just walked away?  
14 They are not pursuing their projects anymore, all those  
15 4,600 megawatts?

16 A. Remembering that one of the reasons  
17 for dropping some of them out was multiplicity of  
18 projects for proponents. Therefore, some of the  
19 projects have dropped out. The proponent is still  
20 there dealing with other projects.

21 Q. That's not what I am asking. In  
22 terms of the projects that you have actually dropped  
23 out?

24 A. The actual project itself?

25 Q. Yes. Are those projects all dead?

A. They are dead right now.

Q. Okay. Some of those were taken out

1 for economic reasons; right?

2 A. Yes.

3 Q. Where developers had decided a year  
4 ago that a project was uneconomic, and now with changed  
5 avoided costs and changed gas prices they feel it's  
6 economic, can they get back in or is it too late?

7 A. Into the RFP? It's too late.

8 Q. Or at all, any way?

9 A. Well, again, if they can now meet the  
10 new criteria that we put forward then they can come  
11 back in.

12 Q. The new criteria being?

13 A. One of the criteria we are trying to  
14 do is establish what the cogeneration level is.

15 Q. Okay. In your projections, though,  
16 you haven't assumed that any of those are coming back  
17 in; right?

18 MR. BROWN: A. If they have proposed a  
19 size greater than the estimated high efficiency, we  
20 have removed that now.

21 Q. Okay. And the ones that were  
22 thermally matched that didn't work?

23 A. They are still included.

24 Q. They are still included in your --

25 A. In my technical potential.

1 Q. Okay. Back to contract.

2 I take it from Mr. Brown's evidence  
3 earlier that often you know informally about a project  
4 before you are officially approached by the developer;  
5 is that correct, Mr. Vyrostkco?

6 MR. VYROSTKO: A. In most cases.

7 Q. You have very good relations and  
8 lines of communications with members of the industry?

9 A. I believe so.

10 Q. When you hear informally about a  
11 project, do you take any action at that time?

12 A. Not necessarily.

13 Q. You mean sometimes you do and  
14 sometimes you don't or you don't?

15 A. Typically we don't.

16 Q. Okay. So, when a developer is ready  
17 to proceed, I assume that there is some formal approach  
18 to you; is that correct? An application or something  
19 like that?

20 A. When the proponent is ready to come  
21 forward, yes there is an application.

22 Q. And what action do you take then?

23 A. Well, if we go back to the direct  
24 evidence, typically when a project is identified by a  
25 proponent, he or she will have identified in general

1 terms a project, we would look at the project and  
2 provide some general information such as the type of  
3 connection that might be required if there is enough  
4 information on the project, the general area of avoided  
5 costs that that project may be looking at.

6 [3:15 p.m.]

7 We would give them the document that we  
8 would be expecting the information to be submitted on,  
9 that is, the request for proposal document, and we  
10 would at that time probably identify some of the  
11 various types of assistance that are available to a  
12 proponent for a project.

13 Q. This is getting ahead of myself just  
14 a little bit, but when you say you give them the  
15 general area of avoided costs, is that, do you give  
16 them a range of price?

17 A. Typically what we do is - if I can  
18 just recall which interrogatory it is - I can't quite  
19 find it yet.

20 We have a little pamphlet that talks  
21 about our illustrative rates and talks about how we  
22 apply component 1 and component 2, and that is  
23 available for proponents as they come in the door, so  
24 it gives them a sense of the types of rates that are  
25 available.



1 Q. This is the -- go ahead.

2 A. In fact, it's in response to  
3 Interrogatory 5.14.138.

4 THE REGISTRAR: What were those last  
5 digits?

6 MR. VYROSTKO: 138.

7 THE REGISTRAR: Thank you. That will be  
8 Exhibit No. 321.23.

9 ---EXHIBIT NO. 321.23: Interrogatory No. 5.14.138.

10 MR. SHEPHERD: Q. So those rates then  
11 aren't indicative of the particular rate for that  
12 project?

13 MR. VYROSTKO: A. In fact -- which  
14 project, the project that has come into the door?

15 Q. Yes.

16 A. No, they're not.

17 Q. They could be well off?

18 A. Yes, they can.

19 Q. Didn't you say just a few minute ago,  
20 maybe it was before lunch, that a whole lot of projects  
21 went west, if you like, after hearing what the range of  
22 rates was?

23 A. A number of proponents in fact  
24 withdrew their projects once they knew what the rates  
25 were, yes.

1 Q. But the rates that you advised them  
2 and on which they based that decision, they weren't  
3 necessarily connected to the rates you would pay for  
4 that project; right?

5 A. No, but a number of the proponents  
6 actually submitted a rate and once they saw how close  
7 that rate was to the illustrative rate, they just  
8 withdrew.

9 Q. Before they would even know what the  
10 rate was for their project?

11 A. Yes.

12 Q. Okay. Let me get back to this.  
13 You've got an application, presumably you set up a file  
14 and you assign somebody to the file; right?

15 A. That's correct.

16 Q. And the people you assign, they're  
17 called coordinators; right?

18 A. That's correct.

19 Q. And how many coordinators do you have  
20 in your division?

21 A. 12.

22 Q. And that's for how many projects  
23 currently under consideration at any given time?

24 A. Approximately 60 projects.

25 Q. Does that include all the little

1 small hydro projects?

2 A. Yes, it does.

3 Q. Could you break that 60 out, just  
4 roughly, between under 5 megawatt and over 5 megawatt?

5 MR. BROWN: A. The information I can  
6 give you is 15 hydraulic, 18 thermal and 13 from the  
7 RFP which is all thermal.

8 THE CHAIRMAN: I'm sorry, I didn't hear.

9 MR. BROWN: 15 hydraulic.

10 THE CHAIRMAN: Yes. 18 thermal.

11 MR. BROWN: 13 thermal from the RFP and  
12 there's a 25 there which are these ones that didn't  
13 make it in the RFP, so they'd probably get -- it  
14 shouldn't be 61, it should be the sum of the first  
15 three numbers, 15, 18 and 13.

16 MR. SHEPHERD: Q. 46?

17 MR. BROWN: A. Yes. 36.

18 Q. 46; 15, 18 and 13?

19 A. Yes, sorry.

20 Q. So right now you only have 46  
21 projects before you; is that right?

22 MR. VYROSTKO: A. 46 under what we would  
23 called proposed, that's correct.

24 Q. Well, what we're talking about when  
25 you set up the file and assign a coordinator is

1 identified; right, that's when you call it identified?

2 A. No, in fact, until the project is  
3 proposed, a coordinator really isn't assigned to the  
4 project.

5 Q. Okay. So you have 46 proposed. So  
6 each of your coordinators has about four projects on  
7 average to work on?

8 A. Or what I would call under active  
9 negotiations, that's correct.

10 Q. Do they have others as well that you  
11 wouldn't so categorize?

12 A. Well, I think what happens is, going  
13 back to the identified projects somebody would maybe  
14 call up and ask for some information and so there might  
15 be some indirect contact with various developers on  
16 some projects but, again, it's strictly more reacting  
17 to communications, calls and stuff like that.

18 Q. Except for certain technical details,  
19 am I right that the developer deals exclusively with  
20 the coordinator in the negotiations with Ontario Hydro?

21 A. Yes.

22 Q. Nobody else is involved in those  
23 negotiations?

24 A. Well, no. There are a number of  
25 people involved in it. The person who has

1 responsibility for working with that project is the  
2 coordinator, but throughout the period there are many  
3 people who are involved in the project.

4 Q. And are involved in direct  
5 negotiations with the developer?

6 A. No, not in direct negotiations but in  
7 terms of providing advice, providing guidelines,  
8 information, whatever is necessary.

9 Q. Well, you have Mr. Barnstaple who  
10 involves himself directly in negotiations; correct?

11 A. Not in all negotiations.

12 Q. Mr. Barnstaple doesn't negotiate with  
13 developers; is that what you're saying?

14 A. Mr. Barnstaple would be involved in  
15 the conclusion of a number of the negotiations.

16 Q. Okay. And you don't involved  
17 yourself personally in negotiations?

18 A. I would be involved in a number of  
19 negotiations as well.

20 Q. You would be?

21 A. Yes.

22 Q. Okay. And we referred to Mr. Tong  
23 who is your spreadsheet specialist. He's involved in  
24 negotiations as well?

25 A. He's part of the coordinators that I



1 gave, the 13. He's part of that group.

2 Q. Okay. But he's not a coordinator?

3 A. I believe his title is senior  
4 coordinator.

5 Q. You have this group of people -- I'm  
6 just trying to get a picture, that's all, there's no  
7 surprise at the end of this. You have this group of  
8 people who -- 12 coordinators; right?

9 A. Yes.

10 Q. And they each have a bunch of files  
11 they are assigned to work on, real projects?

12 A. Yes.

13 Q. Mr. Tong isn't like that, he helps  
14 all of the other coordinators; correct?

15 A. No, I believe Mr. Tong also has some  
16 projects as well.

17 Q. Oh really. Okay. I take it that the  
18 coordinators have some sort of private business  
19 background or expertise in independent power?

20 A. They have -- they all come from  
21 different backgrounds. A number of them have  
22 backgrounds in thermodynamics and have experience  
23 dealing with generating stations.

24 Q. You don't, in fact, have anybody in  
25 your division or any coordinator who has ever worked in

1 private business; do you?

2 A. Yes, I do.

3 Q. You have one?

4 A. At least one.

5 Q. At least one. And you don't have any  
6 coordinators who have any hands-on experience with  
7 independent power; do you, that have actually been out  
8 there building projects or working for companies that  
9 build projects?

10 A. No, I don't.

11 Q. So how do you ensure that your  
12 coordinators develop sufficient expertise to deal with  
13 private sector developers; how do you do that?

14 A. I think that there are a number of  
15 courses that are available throughout North America  
16 dealing with some of the necessary expertise associated  
17 with private development.

18 Q. Such as...?

19 A. There are courses on cogeneration and  
20 the technology associated with cogeneration, there are  
21 courses on negotiations, project negotiations, there  
22 are courses on project financing,

23 Q. And you ensure that all your  
24 coordinators go to such courses?

25 A. We ensure that our coordinators cover

1 off all of the various areas necessary to do projects.

2 Q. Well, I'm not sure that answers my  
3 questions. Do you send them all on courses until they  
4 have learned all the things that they need to learn?

5 A. If I did that I couldn't negotiate  
6 some of the projects. No, I can't send them all on  
7 courses.

8 Q. Okay. Is it fair to say that with  
9 the exception of the odd course here and there, your  
10 coordinators essentially learn everything on the job?

11 A. I think every coordinator that we've  
12 hired into the division has brought some elements of  
13 the business to our division, so that they have not had  
14 to learn all elements of the business once they got  
15 there.

16 Q. Except for Mr. Tong, all of your  
17 coordinators came from other parts of Ontario Hydro;  
18 didn't they?

19 A. No.

20 Q. No. You hired some from outside?

21 A. I'm sorry. No, I did not hire any of  
22 the people into my division directly from the outside,  
23 they might have had outside experience.

24 Q. Does this situation that we're  
25 discussing, does it cause any problems for you in

1 running your business in the NUG division?

2 A. No. Actually, as it turns out, I'm  
3 quite proud of the people that work for me because  
4 we've had many comments from developers talking about  
5 their knowledge and their capability to, in fact, deal  
6 with business. So, no, it doesn't give me any  
7 problems.

8 Q. You haven't made any attempt to hire  
9 people experienced in the independent power area into  
10 your division; have you, say, people who work in U.S.  
11 utilities or people who have worked for independent  
12 power companies, you never made any attempt to hire  
13 that sort of people into your division?

14 A. Currently I haven't.

15 MR. SHEPHERD: Mr. Chairman, that might  
16 be a good time for a break.

17 THE CHAIRMAN: All right. We will take  
18 15 minutes.

19 THE REGISTRAR: This hearing will recess  
20 for 15 minutes.

21 ---Recess at 3:30 p.m.

22 ---On resuming at 3:49 p.m.

23 THE REGISTRAR: Please come to order.  
24 This hearing is again in session. Be seated, please.

25 MR. SHEPHERD: Q. Mr. Brown, this is

1 just one little clean-up thing.

2 I understood you to say that in  
3 California there is only a few hundreds of megawatts of  
4 wind energy; is that right?

5 MR. BROWN: A. In multiples of hundreds  
6 rather than multiples of a thousand. I think the  
7 actual installed capacity is probably 1,200 - I am not  
8 sure of the number - in that order, and on-line at peak  
9 hour would be like 900, 800 megawatts.

10 Q. Would you be surprised to learn that  
11 it's 2,000?

12 A. Of installed or on the peak?

13 Q. Installed?

14 A. Probably my information is just on  
15 the Altamont pass and not the Southern pass.

16 Q. Mr. Vyrostk, back to you. We were  
17 talking about your staff and their training experience.  
18 Is it fair to say that in the past the lack of  
19 experience of your staff meant that there were mistakes  
20 made? Contracts that had inappropriate terms, projects  
21 that were thought okay that turned out not to be okay,  
22 that sort of thing?

23 Not now, in the past.

24 MR. VYROSTKO: A. I don't know when the  
25 past is, but not while I can remember, no.



1 Q. Not in the last couple of years?

2 A. I don't think so.

3 Q. Now, we have got you to the point  
4 where projects come in the door, you have assigned it  
5 to a coordinator, you pass some information back and  
6 forth; correct?

7 Then, assuming that the project is going  
8 to go ahead you have to have - correct me if I am  
9 wrong - you have to have two types of negotiations.  
10 One type is sort of technical and design issues,  
11 interconnect and things like that, and the other type  
12 is price and terms negotiations; is that right?

13 A. I don't think there is that much  
14 negotiations that goes on with some of the technical  
15 elements. It's either the way the specifications call  
16 for it or various standards call for it as opposed to  
17 negotiation. You wouldn't negotiate a lot of the  
18 technical requirements.

19 Q. When a project comes in and there are  
20 a bunch of technical issues like interconnect, like  
21 transmission lines, et cetera, I presume Hydro and the  
22 developer don't always agree as to how those should be  
23 dealt with; is that fair?

24 A. I would think probably that was fair  
25 a few years ago and it's probably not quite so today

1 with the number of documents that we have put forward  
2 so that people understand what the requirements are.

3 Q. When a project comes in will it  
4 normally have all of those technical details worked out  
5 or do you have to work them out?

6 A. No, it's not our responsibility  
7 necessarily to work out the technical details, although  
8 if it is associated with the project it's the project's  
9 proponent -- it's the proponent's responsibility.

10 Q. You have a series of interconnection  
11 and technical specifications that you require  
12 developers to meet; correct?

13 A. That's correct.

14 Q. And those are simply written down,  
15 and they can be applied by any engineer; correct?

16 A. Well, I am not sure if it can be  
17 applied by any engineer.

18 Q. Well, I am biting my tongue. By the  
19 project engineers, though?

20 A. But they are specifications that an  
21 engineer in that business should be able to understand.

22 Q. Okay. I wasn't intending to refer to  
23 this because I thought your answer was going to be  
24 different.

25 I am looking at Volume 67 of the

1 transcript at page 12051. This is your direct  
2 evidence, and this is Mr. Snelson talking at page  
3 12051, and, Mr. Snelson, you talk about  
4 interconnection, and then you say at line 8:

5 "These connection requirements are  
6 part of the negotiating process which has  
7 already been discussed by Mr. Vyrostkco  
8 and I won't discuss further."

9 So is that wrong?

10 MR. SNELSON: A. No. What I meant by  
11 that was that this was part of all the process of  
12 dealing with the non-utility generator to come to terms  
13 and conditions of connection and contract, and so on,  
14 and whether Mr. Vyrostkco used that word as "negotiating  
15 process" as far as I am concerned it's part of the  
16 process of dealing with that project developer for his  
17 project.

18 Q. So, your evidence then, Mr. Vyrostkco,  
19 is that there are no negotiations on technical issues?

20 MR. VYROSTKO: A. I don't believe I said  
21 that definitively there are none. There may be some  
22 negotiations that take place with respect to, for  
23 instance, the size of the project.

24 You recall in my direct evidence I was  
25 saying that after the project is proposed in some cases

1 to make that project economical or technically viable  
2 the project could be changed in terms of size - I used  
3 the term "optimize" - or it could in fact be changed  
4 from an in-service date or some other factors to help  
5 make that project a project that is satisfactory to  
6 both us and the proponent.

7 Q. When you say "change" in terms of  
8 size do you mean increased or decreased?

9 A. Yes, I could go either way.

10 Q. So, in a cogen project, for example,  
11 which is most of them, right, we are talking about  
12 reducing the overall efficiency of the project by  
13 increasing the size? Wouldn't that be the effect?

14 A. No, not necessarily. It depends on  
15 whether it in fact has been put together with optimum  
16 thermal matching to begin with.

17 What we are looking at here is in some  
18 cases changing the size of the project to either suit  
19 different types of equipment that can be purchased off  
20 the shelf, and so, therefore, the proponent can be  
21 taking advantage of some economies of scale to help the  
22 project and the overall cost of the project or in fact  
23 changing, as I said, the in-service date.

24 Q. So let's say somebody comes in with a  
25 thermally matched project. If you are discussing size

1 and you are looking for economies of scale, that means  
2 larger; right? Economies of scale are larger?

3 A. Typically, yes.

4 Q. And if it's thermally matched and you  
5 make it larger, doesn't that mean that it's less  
6 efficient?

7 A. From the definition of  
8 "high-efficiency cogen", yes, that's correct.

9 Q. I get the impression that for the  
10 most part you leave almost everything to the  
11 developers; it's up to them to make their projects  
12 work?

13 A. That's correct.

14 Q. But what you are describing now in  
15 this sort of optimization discussion, this is where you  
16 make suggestions to the developer to improve the  
17 project?

18 A. If the developer so wishes, yes.

19 Q. And a number of your coordinators  
20 have expertise in fossil generation, don't they?

21 A. Yes.

22 Q. But in this discussion of technical  
23 negotiations, I guess what I am most interested in is  
24 things like interconnection and building of  
25 transmission lines and upgrading of stations, et



1       cetera.

2                   Is there no debate between you or -  
3       sorry, "debate", wrong word - discussion between you  
4       and developers about whether what you want is what's  
5       needed?

6                   A. I think there is discussion that  
7       takes place with regard to the project size, and based  
8       on that size the one element is the voltage that you  
9       would necessarily connect the project to.

10                  And so, depending on how big the project  
11       is it may in fact determine the type of voltage, and if  
12       the proponent initially wasn't aware that size and  
13       voltage are in fact related, then that might be some  
14       new news to the proponent initially.

15                  Q. But when you stipulate particular  
16       interconnection rules, say, those are not subject to  
17       negotiation; correct?

18                  A. I think that some of the  
19       interconnection requirements are more stringent than  
20       others.

21                  Q. A developer comes in to you saying,  
22       "I know what your requirements are, but I think I can  
23       solve this a different way technically," is that  
24       allowable, or do you just say, "No, we have our  
25       standards"?

1 A. It depends on what it is, it would be  
2 allowable.

3 Q. Now, who does that? Do your  
4 coordinators do that or do you get your operations  
5 people to do that?

6 A. There are a number of people who  
7 might get involved in that, both operations and  
8 planning people.

9 Q. On the actual technical side, do you  
10 use this breaker or this breaker, that sort of thing,  
11 you get specialists in from power systems operations  
12 division; is that right?

13 A. It might be again from that group or  
14 it might be -- depending again on where the project is  
15 located, it could be regional staff.

16 Q. Where you do have to bring people in  
17 from another division, does that cause delays in a  
18 project where technical issues have to be addressed?

19 A. There can be delays in some cases.

20 Q. Isn't it true, Mr. Vyrostk, that  
21 currently a single change to the single-line diagram  
22 for a project results in at the very least several  
23 weeks of waiting for operations' response? Isn't that  
24 true right now?

25 A. As a general issue, I can't answer

1 that. To a specific project, it depends on the  
2 circumstances and the timing during the year that there  
3 could be a delay like that.

4 Q. Is it fair to say that the operations  
5 people that sometimes are involved in these discussions  
6 from other divisions are resistant to cooperating with  
7 your developers?

8 A. No, I wouldn't characterize it like  
9 that.

10 Q. How would you characterize it?

11 A. I would say that they are  
12 cooperative.

13 Q. If we asked developers who have dealt  
14 with you that same question, would they give us the  
15 same answer?

16 THE CHAIRMAN: How can he possibly answer  
17 that?

18 MR. SHEPHERD: Well, Mr. Chairman, Mr.  
19 Vyrostko said his communications with the industry are  
20 very good.

21 THE CHAIRMAN: He still doesn't know --  
22 his communications may be good, but they aren't  
23 psychic, I don't think.

24 MR. SHEPHERD: Maybe I can ask it another  
25 way.

1 Q. Mr. Vyrostkco, do you believe that  
2 there is a perception in the developers you deal with  
3 that the operations people are resistant to  
4 cooperation?

5 MR. B. CAMPBELL: Isn't that the same  
6 question, Mr. Chairman?

7 MR. SHEPHERD: He can say he doesn't  
8 know.

9 THE CHAIRMAN: Well, no, it's put a  
10 little differently. It is whether it's his perception  
11 or not, so I guess he can answer that.

12 MR. VYROSTKO: Let me start by asking you  
13 to repeat the question, please.

14 THE CHAIRMAN: By the way, I don't know  
15 what all this has to do with what we have to decide,  
16 but I am sitting patiently hoping it will become  
17 apparent pretty soon.

18 MR. SHEPHERD: I am going somewhere, Mr.  
19 Chairman.

20 Q. The question is: Do you believe that  
21 there is a perception within the developers you deal  
22 with that the operations people are resistant to  
23 cooperation on their projects?

24 MR. VYROSTKO: A. The developers that I  
25 deal with and the information that I get from them and

1 from the various industry committees and groups I deal  
2 with do not suggest that.

3 Q. Okay. Early on in this process of  
4 dealing with a developer you have to identify things  
5 that you will have to do to your system to take this  
6 project; right?

7 A. We --

8 Q. Station upgrades, auto-transformer  
9 upgrades, et cetera?

10 A. We only do that once the project is a  
11 proposed project.

12 Q. But in the sequence we have been  
13 talking about we have got a proposed project; right?

14 A. Oh. Okay, we have a proposed  
15 project, and, therefore, if there is -- first of all,  
16 once we have a proposed project, that -- in fact, we  
17 have then gone to the various technical people in the  
18 corporation to determine what is necessary to bring  
19 that project on-line.

20 Q. So, for example, if the addition of a  
21 project would overload one of your auto-transformers  
22 you have to identify that problem early; right?

23 A. Yes, we would.

24 Q. And when you have that sort of  
25 problem, what do you do? You don't just tell the



1 developer, "Go away, we can't handle your project";  
2 right?

3 [4:05 p.m.]

4 A. There may be situations where that  
5 may happen. If, for instance, the costs to the system  
6 and to the corporation are such that it is not a good  
7 proposition for everybody, than it may in fact have to  
8 be the answer.

9 Q. But normally that's not what you do.

10 A. Normally that's not the case. There  
11 may be ways to in fact accommodate the project.

12 Q. Isn't it true that if you have any  
13 change to the grid, if you like, that results from the  
14 NUG project, you simply ask them to write a cheque for  
15 the cost; isn't that right?

16 A. It depends on the circumstance.  
17 There may be cases where that could occur, and other  
18 cases that may not happen.

19 Q. Well, what else would you do, what  
20 other possible ways do you have of dealing with it?

21 A. For instance, if in some cases the  
22 addition of that facility would help the system, in  
23 terms of saving on facilities, then there wouldn't be  
24 any of the cost charged to the developer.

25 Q. Actually, that's an interesting

1 contrast. If you have Developer A who wants to  
2 interconnect to your system and you have to advance the  
3 building of -- or the upgrading of a substation and the  
4 value of advancing that upgrade is half a million  
5 dollars, Developer A has to pay that half a million  
6 dollars if he want to interconnect; correct?

7 A. If the cost of the upgrade was  
8 specifically chargeable back to the developer, yes.

9 Q. Now, let's make the opposite true.  
10 Developer B wants to interconnect and you are going to  
11 get a benefit of some sort, you are going to balance  
12 the system, you are going to be able to defer a cost,  
13 you don't right a cheque to the developer for that; do  
14 you?

15 A. No, we do not right a cheque. We  
16 reflect that in the price that we would pay for that  
17 project.

18 Q. So that is not quite symmetrical?

19 A. It depends on how one interprets  
20 symmetry there.

21 Q. Let's say a developer comes in with a  
22 technical proposal, we want to do the interconnect this  
23 way and you disagree. Your operations people look at  
24 it, they say no, the way we do it is the way we want to  
25 do it, and you can't agree, what happens?

1                   A. If we cannot agree to some compromise  
2                   there because there isn't a compromise, then I think we  
3                   would then suggest -- not suggest, we would ask for  
4                   what we would expect to be required by the  
5                   interconnect.

6                   Q. So, it's totally Hydro's decision in  
7                   the end whether to accept any technical proposal; isn't  
8                   that correct?

9                   A. From an interconnect perspective.

10                  Q. Yes.

11                  A. Yes, I think it is.

12                  Q. And there is nobody the developer can  
13                  go to, is there, to say, I can't agree with Hydro, I  
14                  know I am right, arbitrate; is there?

15                  A. Not that I am aware of.

16                  Q. What incentive do your staff have,  
17                  the staff who deal with the sort of technical issue, to  
18                  come to some sort of compromise with the developer?

19                  A. I would probably think the one  
20                  incentive is what is suggested by the goal of the  
21                  division, to promote and establish maximum economic  
22                  non-utility generation for the benefit of Ontario. And  
23                  I think it is the commitment and the pride that the  
24                  staff take in trying to in fact bring projects that  
25                  will in fact bring value to both the proponent and to

1 Ontario over the long-term.

2 So, I think there is a lot of  
3 professionalism, a lot of integrity, committing them  
4 and driving them to get good projects.

5 Q. We heard from Panel 4 that senior  
6 staff in the demand management branch get some sort of  
7 incentives as part of their remuneration when they meet  
8 targets. Is that true in the NUG division?

9 A. I have a performance contract. The  
10 performance contract identifies a number of key issues  
11 that I am expected to be able to manage and deliver on  
12 a given basis. One of those elements is the number of  
13 projects we get on board. So, from that perspective  
14 then I would have to say there is something driving me  
15 as well.

16 Q. Okay. None of your other staff have  
17 any similar incentives; is that correct?

18 A. Yes, all those staff reporting  
19 directly to me.

20 Q. All of the staff?

21 A. Yes.

22 Q. So that's all of the coordinators?

23 A. They don't report to me. They report  
24 Allan Barnstaple.

25 Q. So, Mr. Barnstaple has a similar

1 provision, but none of the coordinators or any of those  
2 people do?

3 A. All the people who report directly to  
4 me have performance contracts.

5 Q. That's only a small number of people  
6 in your division?

7 A. That's correct.

8 Q. And they make a difference  
9 financially, correct, personally they make a difference  
10 financially?

11 I am not asking you for numbers, that  
12 wouldn't be fair.

13 A. I don't understand the question.  
14 Maybe you can rephrase it.

15 Q. Well, you know in some businesses if  
16 you sign "X" dollars worth of contracts you get a bonus  
17 or you get a raise. Is this what we are talking about  
18 in these performance contracts?

19 A. The performance contract is one of  
20 the elements that I use to determine whether in fact a  
21 person would get a raise in a given year.

22 Q. And the same is true of you?

23 A. That's correct.

24 Q. Okay. Are those incentives, are they  
25 based on numbers of projects or megawatts of capacity?



1 A. It could be both.

2 Q. The performance contracts have both  
3 in them?

4 A. Yes.

5 Q. Okay. Now, you talked about the  
6 interconnection standards for a project and said they  
7 are written down, right, a set of written rules?

8 A. There is a number of standards that  
9 are written down, that's correct.

10 Q. Do you have to, when a project comes  
11 in, do you have to - how shall I explain this? Do you  
12 have to sort of provide the developer with a customized  
13 application of those standards for that particular  
14 project?

15 MR. BROWN: A. I think we just provide  
16 general guidelines. There are requirements that are  
17 stated, but in general it's more guidelines. It's  
18 split on voltage level. Those under 50,000 kV have a  
19 set of guidelines and those over 50,000 kV have a  
20 different set, and the reason for the split is because  
21 of NAERC requirements must be met by not only NUGs but  
22 Ontario Hydro.

23 Q. NAERC being the North American --  
24 North Eastern.

25 A. Reliability Council.

1 Q. Reliability Council?

2 A. No, North American Electric  
3 Reliability Council.

4 Q. I was close.

5 That's the grid you are connected with  
6 outside of Ontario; right?

7 A. We are connected to parts of it.  
8 It's all of North America on the eastern Rockies' side.

9 Q. So, then my question is: When a  
10 project comes in, do you have to tell them, well, this  
11 is how the guidelines apply to you, to your project,  
12 this is the equipment you need to be acceptable to us?

13 A. We provide the specifications, they  
14 order the equipment.

15 Q. There is equipment on both sides of  
16 the line; right? There is equipment on the developers  
17 sides of the interconnect and there is equipment on  
18 your side of the interconnect; right?

19 A. That's correct.

20 Q. The developer pays for both; right?

21 A. If it's an upgrade on our system,  
22 yes. We pay for the meter on his side.

23 Q. Okay, But I am thinking of the  
24 breakers and protection devices and all that, that's  
25 all paid for by the developer on both sides of the

1 line; right?

2 A. Yes.

3 Q. Okay. And the stuff on the developer  
4 side of the line, the developer can just go out and get  
5 it anywhere; right?

6 A. We have a look at where he is getting  
7 it from and help him in his selection. We provide  
8 guidelines.

9 Q. But the stuff on your side of the  
10 line, isn't it true that you just tell him how much  
11 it's going to cost and you get it wherever you want to  
12 get it?

13 A. To meet our own standards, yes.

14 Q. How does the developer know whether  
15 the costs that you have assigned for that are  
16 reasonable? Is there some way of him determining that?

17 A. In the early stages we give him a  
18 preliminary estimate of the costs required early in the  
19 project and identify the work required to interconnect  
20 him. I am not aware of anybody that's objected to  
21 those numbers, with the understanding of the work  
22 involved to interconnect.

23 Q. There is no negotiation of that  
24 though, if you say to the developer, we are going to  
25 have to spend \$1 million to connect you up, then the

1 developer has just got to pay you that; right?

2 A. Well, these are professional people  
3 that are dealing these designs and they are just not  
4 throwing pieces of equipment in there for no reason.  
5 the recognize this guy has a business to be made and  
6 they are looking at providing the minimum amount of  
7 protection that's required.

8 Q. I guess my question is, is it a  
9 negotiable item or not?

10 A. I wouldn't think so.

11 Q. Again, as before when we were talking  
12 about the actual technical specifications, if the  
13 developer disagrees with you on whether the cost is  
14 reasonable, there is no where to go; right?

15 A. There are different ways to  
16 interconnect. He may come out with a different project  
17 proposal where we can interconnect at a lower cost.

18 Q. Are all similarly situated NUGs  
19 required to meet exactly the same interconnection  
20 standards and costs?

21 A. It's all site specific.

22 Q. So, the actual technical  
23 specifications and the costs could vary widely from  
24 site to site; couldn't they?

25 A. It varies greatly on where it's

1 located, how far away it is from the station, length of  
2 line, voltage of lines, where in the province it is.

3 Q. Is it possible to generalize as to  
4 whether the costs quoted by Ontario Hydro for its  
5 portion of interconnect are comparable to the costs  
6 private developers pay for their portion of the  
7 interconnect? Are we talking about the same range or  
8 are there variations between --

9 THE CHAIRMAN: Aren't you talking about  
10 different things?

11 MR. BROWN: They are two different types  
12 of work. They have costs on their side which may be a  
13 local of lower voltage and we may have it to do work on  
14 a 230 kV station which obviously would be higher cost  
15 than working at 50 kV.

16 MR. SHEPHERD: Q. If a developer says  
17 that he can arrange for a competent firm to do the  
18 interconnection, Hydro's side of the interconnection,  
19 cheaper than what you think it will cost, meeting all  
20 your specifications, can a developer do that?

21 MR. BROWN: A. I think in terms of a  
22 transmission line that's external to Hydro property,  
23 that's acceptable. But I think if it was work in one  
24 of our substations it would have to be done by a Hydro  
25 employee.



1 Q. Okay. Now, you give an early  
2 estimate as to how much interconnection will cost;  
3 right?

4 A. Yes.

5 Q. Have you made any effort to track  
6 whether your final costs are close to your early  
7 estimates?

8 A. This is a brand new process we have  
9 just established in the division to speed up the  
10 connection review of NUG projects. It is important to  
11 give the developer a feel for what it's going to cost  
12 to hook and we try and give him a ballpark number - we  
13 have just started doing this - rather than keeping him  
14 waiting for the final number. So, that number will be  
15 produced later on in the negotiation, but at least it  
16 will give him something to start with, to look at his  
17 project.

18 Q. Later on in negotiation when there is  
19 a hard number, is that a number that Hydro sticks to or  
20 is the developer required to pay the actual cost  
21 whatever it is?

22 A. To date all numbers are ceiling, we  
23 will not charge more than that number.

24 Q. That didn't used to be your practice;  
25 right?

1                   A. I am not aware if we provided the  
2       numbers early that were firm. It might have been just  
3       a cost plus in the contract.

4                   THE CHAIRMAN: Did I understand you to  
5       say your estimate is a ceiling number?

6                   MR. BROWN: We produce two numbers, the  
7       first one is preliminary number, the second one, once  
8       we give him that number, we will stick to that.

9                   THE CHAIRMAN: The second number you  
10      stick to.

11                  MR. BROWN: That's right.

12      [4:20 p.m.]

13                  MR. SHEPHERD: Q. And isn't it true  
14      that -- Mr. Vyrostko, maybe this is for you. Isn't it  
15      true that generally your final interconnect numbers,  
16      whether they're actual costs or whether they're your  
17      ceiling number, have historically been far higher than  
18      your initial estimates on average?

19                  MR. VYROSTKO: A. I can think of  
20      situations where our final numbers have been higher.

21                  Q. Okay. Let me come to price and  
22      terms.

23                  THE CHAIRMAN: Interconnection, and in  
24      the broadest sense, sometimes you charge the proponent  
25      if there's some additional cost to Hydro and sometimes

1 there's a benefit, you said, and you don't charge them  
2 but you build it in.

3 Would there be a third situation where  
4 money couldn't cure the situation because of the  
5 balance of supply/demand management, for example, that  
6 you would have to reject a project which was otherwise  
7 a good project for that reason?

8 MR. VYROSTKO: I think I mentioned that,  
9 in fact, that could happen.

10 THE CHAIRMAN: Yes.

11 MR. VYROSTKO: Where, for certain  
12 locations or because of certain technical criteria we  
13 just -- there isn't anything we can do in the short  
14 term at least to accommodate that project.

15 MR. SHEPHERD: Q. Just to clarify  
16 something, Mr. Vyrostko. It's true that there's always  
17 a charge for interconnection; isn't there?

18 MR. VYROSTKO: A. There is always a  
19 charge for interconnection, that's correct.

20 Q. Okay. What you were talking about  
21 where there might be circumstances where the system  
22 benefits, that goes beyond interconnection charges;  
23 right?

24 A. Not only with the interconnection,  
25 which is the actual physical connection of a generating

1 station to the system, there are then the downstream  
2 impacts of that.

3 Q. Which could be good or bad?

4 A. Which could be good or bad.

5 Q. But the interconnection is always a  
6 cost?

7 A. The interconnection is always a cost  
8 that has to be there.

9 Q. And it can be quite a significant  
10 number; right, hundreds of thousands or millions of  
11 dollars in some cases?

12 MR. BROWN: A. I might add here that it  
13 could range from zero to millions of dollars depending  
14 on how far away it is from the grid. If it's one of  
15 our customers obviously who's already connected, there  
16 wouldn't be a connection charge for that, but if it's a  
17 hydraulic facility a hundred miles from the grid,  
18 obviously the connection cost could be significant.

19 Q. When one of your existing customers  
20 starts to cogenerate is there no additional  
21 interconnection cost?

22 A. If he's not selling, if it's load  
23 displacement--

24 Q. Oh, yes.

25 A. --there may not be any charge there.

1 Q. Of course, sorry. All right. So  
2 we're going to go on to price and terms.

3 When a project comes in, whether in the  
4 RFP or through the open door policy, as I understand  
5 your evidence, the price and other financial terms  
6 could be proposed by the developer or they could be  
7 proposed by Ontario Hydro; is that right?

8 MR. VYROSTKO: A. Yes, that's correct.

9 Q. Let's look first at the situation in  
10 which the first financial proposal is by Hydro. How do  
11 you go about doing that, can you just describe how you  
12 do that?

13 A. Typically the first proposal from  
14 Hydro would be the illustrative rate that I was just  
15 referring to previously in the interrogatory.

16 Q. Okay. But that's way back when it's  
17 only identified; right?

18 A. Possibly -- no. When it's first  
19 identified what we would do is, we'd give that to the  
20 proponent so that the proponent is aware of what the  
21 implications of his project are from a cost  
22 perspective.

23 Once the project is now proposed to us,  
24 then we would turn around and we would then help the  
25 proponent understand the illustrative rate that we sent



1 previous to that as to how it applies to his own  
2 project, because the illustrative example that we have  
3 is at a certain voltage, it also has certain delivery  
4 patterns and so, therefore, what we would do is try to  
5 then take that illustrative rate and help the proponent  
6 translate that into more his project.

7 Q. Well, do you calculate a  
8 site-specific avoided cost?

9 A. At that time -- at some stage of the  
10 negotiations we do, yes.

11 Q. Okay. And presumably you do before  
12 you actually start to talk turkey about price; right?

13 A. Not in all cases.

14 Q. So you can actually discuss price,  
15 like really negotiate price with a developer before you  
16 know what the avoided costs for the project are?

17 A. I think in some cases we could be  
18 negotiating the project before the proponent has come  
19 back with any response to price because, again, the  
20 price is the reflection of the value of the project.

21 In some cases before you get to that  
22 stage the project has to be a project that is totally  
23 designed in terms of size, location, timing,  
24 performance patterns and all of that, and until all of  
25 that has been put down very clearly it's very difficult

1 to either turn around and give a site-specific avoided  
2 cost or for the proponent to then have any  
3 understanding of the implications of that to his  
4 particular project.

5 So sometimes you may spend a while before  
6 you get to that.

7 Q. Okay. Then at some point you have to  
8 calculate the site-specific avoided cost; is that  
9 right?

10 A. That's correct.

11 Q. Okay. Is that done in your division  
12 or is it done in system planning?

13 A. The actual avoided cost is calculated  
14 from the project appraisal system incremental values  
15 that are provided by system planning.

16 Q. But the calculation is done by your  
17 division?

18 A. But the rate is provided by our  
19 division.

20 Q. You take the system incremental costs  
21 and you calculate the project rate?

22 A. That's correct.

23 Q. Okay. But your first offer to the  
24 developer isn't at full avoided cost; is it?

25 A. Depending on the circumstances, it

1 may.

2 Q. What sort of circumstances are we  
3 talking about here? Why would it be or not be avoided  
4 cost?

5 A. Depending on how much information we  
6 have on the project.

7 Q. Can you tell us how that's relevant  
8 to your offer?

9 A. Well, again, if the location isn't  
10 clearly known, there is still three or four sites  
11 being proposed, if the size isn't fully accepted yet  
12 and, therefore, the proponent is still prepared to look  
13 at different size ranges, then we really don't have the  
14 project fully defined, and until the project is fully  
15 defined we really can't try to reflect all values of  
16 the project through the rate.

17 Q. But didn't you say a minute ago that  
18 until the project is fully designed you don't even  
19 calculate the avoided cost?

20 A. Well, no, but we use the illustrative  
21 rate which is an example of an application of the  
22 avoided cost to a project that is, for instance,  
23 typical of that size.

24 Q. Sorry.

25 A. And then what we do is, if we had a

1 project that was getting close to having a known  
2 voltage level, known technical criteria then, in fact,  
3 we would give the project-specific avoided cost to  
4 that.

5 Q. You do that calculation?

6 A. The purchase rate, yes, the rate that  
7 comes from the avoided cost.

8 Q. And I guess what I'm trying to  
9 determine is, on some projects you will calculate the  
10 avoided cost and say: That's our avoided cost, that's  
11 what we will pay you; right?

12 A. Yes.

13 Q. On other projects you don't?

14 A. That's correct.

15 Q. You offer less than avoided cost?

16 A. We would offer only cost based on  
17 known information. As an example, for cogeneration  
18 projects there's an efficiency adder, there is -- it  
19 takes -- until the actual project is completely defined  
20 there is no way of being able to translate the  
21 efficiency adder into the value of the project, and so  
22 it's quite a while before we translate that into the  
23 project because the actual specific elements of the  
24 project haven't been identified by the proponent.

25 Q. So the only situation in which you

1 would offer less than avoided costs is if you lack  
2 information, you don't have full information on the  
3 project?

4 A. We can't determine what the full  
5 avoided cost is unless we have all of the information.

6 Q. Okay. So now you've got all the  
7 information. Once you've got all the information, do  
8 you offer full avoided costs?

9 A. In some cases, no.

10 Q. And under what criteria do you decide  
11 whether to offer full avoided costs or not?

12 A. If we feel that the project is -- or  
13 we can negotiate the project for something less than  
14 avoided cost.

15 Q. And on what basis do you make that  
16 determination?

17 A. Based on the information we have on  
18 the project, the experience that we have on various  
19 elements in the project design, we would then make a  
20 judgment call.

21 Q. And that judgment call is based,  
22 what, on the project's economics. What rate they can  
23 live with?

24 A. It might be that.

25 Q. Well, could it be something else?



1                   A. Well, we don't see what the criteria  
2                   are for the developer in terms of what's critical, rate  
3                   of return and all, we don't know what that is but, for  
4                   instance, what we do know is the typical revenue stream  
5                   that the developer is asking for from that project, and  
6                   if that revenue stream far outweighs typical revenue  
7                   streams for other similar sized projects, then we might  
8                   suggest that the project isn't either effectively  
9                   designed or they're asking too much out of the project.

10                  Q. I'm obviously not making myself  
11                  clear. Let me try this again. You have a project now,  
12                  you have all the information, okay, so you can  
13                  calculate your avoided cost?

14                  A. Right.

15                  Q. Now, you have to decide what to offer  
16                  the developer?

17                  A. Right.

18                  Q. Sometimes you offer full avoided  
19                  cost?

20                  A. Yes.

21                  Q. Sometimes you don't?

22                  A. That's correct.

23                  Q. You have all the information. What  
24                  is the criterion on which you say this one we will  
25                  offer full avoided cost and this one we won't?

1                   A. I think it's based on our judgment as  
2 to what we believe the project of that size requires.

3                   Q. Is that generic or is it project  
4 specific?

5                   A. Project specific.

6                   Q. Can you do that without the financial  
7 information on the project?

8                   A. Yes.

9                   Q. How?

10                  A. By calculating, based on the  
11 information provided by the proponent. Now, when you  
12 say financial information, we would have to have some  
13 information from the proponent in terms of either  
14 capital costs of the project, the delivery patterns,  
15 and stuff like that.

16                  Q. Now, I thought I heard you say the  
17 other day that you don't require financial information,  
18 the costs and stuff like that from proponents, you  
19 don't require that they give you that information;  
20 correct?

21                  A. That's correct.

22                  Q. So what if the developer doesn't give  
23 you that information, how do you determine then what to  
24 offer?

25                  A. We use -- in general, to give us a

1 ballpark estimate, we use a spread sheet which is, in  
2 essence, the same spread sheet as Mr. Brown uses for  
3 his cogen models and based on sort of industry averages  
4 and industry trends we have numbers in there and we use  
5 that as an indicator.

6 Q. Okay. I don't want you to give up  
7 your negotiating strategy, I guess I would be  
8 interested: Are we talking about 50 per cent of  
9 avoided cost, or 75, or 90? I mean, what sort of range  
10 are we in here when you make an offer below avoided  
11 cost?

12 A. In general, it's reasonably close to  
13 avoided cost.

14 Q. Is that just because the economics  
15 demand that?

16 A. I think it's because of a couple of  
17 things. One is the experience with the industry and  
18 knowing what it takes to put a project together and,  
19 therefore, a sense of really what are the values of  
20 economic projects; and then two is, again, the  
21 relationship we have with the industry.

22 [4:35 p.m.]

23 There is no point of putting an offer on  
24 the table that isn't outlined to the shopper, and so  
25 clearly what you want to try to do is try to give a

1 value of the project that resembles the value of the  
2 project.

3 Q. Now, my question is going to be, and  
4 maybe you can -- I have to backtrack a second here. I  
5 thought I heard you say the other day that once you  
6 make an offer, price isn't negotiated; is that right?  
7 I guess there is no debate about the price itself; is  
8 that right?

9 A. I'm not sure. Did I say that?

10 Q. I thought I heard you say that. You  
11 can clarify it.

12 A. I don't think so.

13 Q. You don't think that's true?

14 A. I think that price is negotiated.

15 Q. Okay. In fact, any time that you  
16 offer less than avoided cost ultimately the price  
17 becomes a wholly negotiated number; right?

18 A. That's correct.

19 Q. And there are many technical  
20 considerations that enter into that; right? For  
21 example, if Hydro assumes more risks in the contract,  
22 it will lower the price accordingly; is that right?

23 A. If we assume more risk, and depending  
24 on what the value of that risk is, we would then try to  
25 reflect it in the value of the overall project

1 economics, yes.

2 Q. And there is consideration of things  
3 like contract terms and level of dispatchability and  
4 reliability? All of those are things that impact on  
5 what number you are prepared to negotiate; right?

6 A. They have an impact on the value of  
7 the project.

8 Q. Okay. Even with those  
9 considerations, isn't it true that two identical  
10 projects could end up with different negotiated rates?  
11 Isn't that right?

12 A. That's a possibility.

13 Q. Just accept the hypothesis that you  
14 might have two identical projects for a second, and  
15 tell me, how could you have a situation in which you  
16 pay a different amount to those two developers?

17 A. I would think, for instance, if each  
18 of those developers didn't require the same return we  
19 wouldn't have to pay the same.

20 Q. Okay. Just their negotiating stance,  
21 how tough they are with you in negotiations?

22 A. I am not sure it's how tough they are  
23 in negotiations. It's really what they feel is  
24 important to them for the project.

25 Q. Is part of that difference how



1 positively your staff feel towards the project itself,  
2 how badly you want that particular project to succeed?  
3 The intangibles, I am talking about.

4 A. I don't think so. Not those types of  
5 intangibles.

6 Q. If the developer is one you have done  
7 business with before or you know well from other  
8 dealings with Hydro, is it fair to say that your  
9 initial offer will be higher as a percentage of avoided  
10 cost?

11 A. Not necessarily.

12 Q. Wouldn't you want to do that to sort  
13 of get to the final answer as quickly as possible?

14 A. Not necessarily.

15 Q. No? So do you do that sometimes or  
16 not?

17 THE CHAIRMAN: Do what sometimes?

18 MR. SHEPHERD: That is, sort of start  
19 with a higher number than you might otherwise because  
20 you know the person.

21 THE CHAIRMAN: Okay.

22 MR. VYROSTKO: Because I know the person?

23 MR. SHEPHERD: Q. Because they're a  
24 developer that has done a successful project or they're  
25 somebody who deals with Hydro elsewhere, and that sort

1 of thing.

2 MR. VYROSTKO: A. Well, I think that  
3 every project we evaluate based on a lot of factors,  
4 and some of those are what we call "non-price factors":  
5 the experience that the developer has; the type of  
6 financing that is behind the project, if in fact we  
7 know what the financing is; the type of equipment, is  
8 it new, is it old.

9 There are a lot of elements that go into  
10 the overall integrity of the project, and so that is  
11 part of the judgment that is exercised when you are  
12 going through the negotiation.

13 Q. If the developer is somebody that --  
14 let's say they failed to complete two other projects  
15 that you committed. Let's just hypothesize that. You  
16 committed to them twice; both times they bombed out.  
17 Is it fair to say that you are going to be tougher in  
18 your negotiations the third time around, start with a  
19 lower offer and push harder?

20 A. No, I think that would be probably  
21 clarified at the front end when you are dealing with  
22 the project design and all the information that goes  
23 into a project.

24 Q. From your discussions with people in  
25 the industry do you feel that there is any perception

1       that people who are critical of Ontario Hydro get a  
2       worse deal than people who are "friends" of Hydro?

3               A. I don't want to point anybody out,  
4       but somebody was coughing when you said a couple of key  
5       words there, so could you please repeat the question?

6               Q. From your discussions with people in  
7       the industry have you got any sense that there is a  
8       perception from people in the industry that people who  
9       are critical of Ontario Hydro get a worse deal than  
10      people who are "friends" of Hydro?

11              A. Not at all.

12              Q. You don't feel there is any  
13      perception of that sort?

14              A. No.

15              Q. Okay. It's true, isn't it, that in  
16      negotiating with independent producers your staff and  
17      you have a lot of discretion in your negotiations?

18              A. It depends on what you mean by  
19      "discretion".

20              Q. Well, you have a discretion as to how  
21      high you set the price?

22              A. No, I can only go up to avoided cost.

23              Q. But you can go below it?

24              A. Oh, I can go below it, yes.

25              Q. And you agreed that two identical

1 projects wouldn't necessarily get the same price;  
2 right?

3 A. That's correct.

4 Q. So that's a discretion?

5 A. That is correct.

6 Q. And other contract terms as well, you  
7 have a lot of discretion in terms of what risks you  
8 will take in a particular project, things like that; is  
9 that right?

10 A. Again, I think when you are looking  
11 at it, the risks have to be outweighed by the benefits.

12 There are some -- there are some areas  
13 where there can be some judgments made with regard to  
14 accepting a risk, but at the same time there are limits  
15 to how far the project can be allowed to go without  
16 violating some of these limits.

17 Q. Fair enough, but there is certainly a  
18 lot of judgment that goes into this whole process;  
19 right?

20 A. There is some judgment that goes into  
21 the process, yes.

22 Q. And those judgments are made in  
23 secret; right?

24 A. Secret to who?

25 Q. That nobody outside of Ontario Hydro

1 looks at those judgments to see whether they are done  
2 properly?

3 A. I think that, you know, Hydro is  
4 looked at as an organization that has an important  
5 mandate to serve the province. Every year the  
6 Corporation goes to the Ontario Energy Board with the  
7 process by which it conducts business and within that  
8 context is looked at as meeting its responsibilities.

9 I believe that the way I report to the  
10 Executive office, and the communication, and the  
11 information that we provide on the projects I think  
12 satisfies all of them that we are well within the  
13 accepted judgment areas on those projects.

14 Q. When you go to the OEB you don't  
15 provide them details on specific negotiations, do you?

16 A. No, we do not.

17 Q. Nor do you provide anybody with that;  
18 right?

19 A. No, we do not.

20 Q. Let's accept for the moment that you  
21 and your staff are always fair in every respect.  
22 Accept that.

23 Is there not a risk, Mr. Vyrostko, that  
24 if you have different staff, different motivation,  
25 different agenda for individuals, that some of the



1       discretions that your staff and you have could be  
2       abused? Isn't there a risk of that?

3               A. With the types of administrative  
4       procedures that I have tried to put in place I don't  
5       think there is that risk.

6               Q. And why is that? What sort of  
7       controls do you have to prevent that?

8               A. We in fact try to identify as best we  
9       can the types of discretions that everyone can sort of  
10      operate within.

11              Q. I don't understand. There is nobody  
12      outside of your division that looks at each individual  
13      negotiation and says, "Yes, you are being fair"?

14              A. There is an approval process that we  
15      have that has a number of other people looking at the  
16      decision analysis that we have put together and how we  
17      in fact negotiated the project.

18              Q. That's in the corporate office?

19              A. There is a couple different areas  
20      where that's looked at.

21              Obviously, from the overall financial  
22      side, the corporate office through its controllership  
23      function looks at it from there. There is the legal  
24      elements of that that's looked at as well.

25              Q. Yes.

1                   A. And then the overall transaction from  
2 a business perspective is looked at by the Executive  
3 office.

4                   Q. That's within Hydro?

5                   A. (Nodding).

6                   Q. So it's like a review within Hydro of  
7 what you are doing?

8                   A. Yes.

9                   Q. Okay. And as a result of that review  
10 within Hydro you believe that there is no possibility  
11 that any abuse of judgment or discretion could occur;  
12 is that right?

13                  THE CHAIRMAN: I am not quite sure what  
14 you mean by "abuse". I think you are suggesting, I  
15 take it, that there is an obligation for Hydro to be  
16 fair? Is that what you are saying?

17                  MR. SHEPHERD: Well, I am I guess  
18 assuming - and maybe the witness could speak to this -  
19 that there is an obligation on Hydro not to make  
20 decisions on individual projects based on extraneous  
21 factors, like whether the person is a friend of Hydro.

22                  THE CHAIRMAN: Well, that's a very, very  
23 difficult question I think for anyone to answer.

24                  MR. SHEPHERD: Well, Mr. Chairman, I am  
25 not trying to come at whether --

1 THE CHAIRMAN: -- what happened? Is that  
2 what you are trying to say? I don't quite understand  
3 this line of questioning at all.

4 MR. SHEPHERD: I am trying to determine,  
5 Mr. Chairman, whether the current structure, how they  
6 do things, creates a generic potential for abuse, small  
7 or large.

8 THE CHAIRMAN: Well, you can argue it may  
9 create that, but I think what you should confine your  
10 questions to is what their structure is and how they do  
11 things.

12 You can ask them what their process is  
13 and how they go about it and we can draw inferences  
14 from it and so can you, but I don't know how you can  
15 expect them to say there is no possibility of abuse. I  
16 don't see how anyone can say that--

17 MR. SHEPHERD: Okay.

18 THE CHAIRMAN: --about any organization.

19 MR. SHEPHERD: Mr. Chairman, I have to  
20 come at this I guess a different way because the whole  
21 discussion of standard offered contracts, which is a  
22 pretty important aspect of our case, depends on the  
23 notion of public review and set rules as opposed to  
24 discretions.

25 THE CHAIRMAN: I guess it has been

1 established that there is no outside review of these  
2 negotiation projects. Maybe there should be and that  
3 may be something that we will have to consider, but at  
4 the moment there is no outside review or no outside  
5 objective standards that are imposed. As far as I can  
6 tell from the evidence, it's a straight contractual  
7 negotiation,--

8 MR. SHEPHERD: Okay.

9 THE CHAIRMAN: --as in many business  
10 enterprises, with certain recognized ground rules.

11 MR. SHEPHERD: Fair enough.

12 Q. Mr. Vyrostkco, I understood you to  
13 say - and you can correct me if I am wrong on this -  
14 that you don't believe there is any perception within  
15 the independent power industry of lack of fairness by  
16 Hydro. Is that what you said? Am I stating it fairly?

17 MR. VYROSTKO: A. That's correct.

18 Q. I am going to ask you to turn up  
19 Interrogatory 5.14.80.

20 THE REGISTRAR: What is that number,  
21 again?

22 MR. SHEPHERD: 5.14.80.

23 THE REGISTRAR: That will be 321.24, Mr.  
24 Chairman.

25 THE CHAIRMAN: Thank you.

1       ---EXHIBIT NO. 321.24: Interrogatory No. 5.14.80.

2                   MR. SHEPHERD: Q. We have actually only  
3       copied a one-page excerpt from this, but perhaps first,  
4       Mr. Vyrostk, you could identify the document that is  
5       attached to 5.14.80?

6                   MR. VYROSTKO: A. The document is the  
7       Coopers & Lybrand consulting group's survey of the  
8       non-utility generation industry.

9                   Q. Let me see if I can find the page we  
10      copied.

11                   Could you look at Exhibit 7 of that,  
12      please? It's just before page 33.

13      [4:50 p.m.]

14                   Do you have that have, Mr. Vyrostk?

15                   A. I do.

16                   Q. And this is an analysis by Coopers  
17      and Lybrand, isn't it, of the level of importance of  
18      particular issues to the members of the NUG industry;  
19      isn't that right?

20                   A. I believe it's the level of ranking  
21      of activities they believe Hydro should be doing,  
22      that's correct.

23                   Q. Okay. And just third from the top,  
24      the first two are price things; right?

25                   A. That's correct.



1 Q. And it's fair to say that this report  
2 concludes that price is the biggest issue for the  
3 independent power industry as a general overall  
4 conclusion?

5 A. I believe one of the key  
6 recommendations that they discuss is dealing with the  
7 communication aspect of the overall business. They  
8 identify within the communication the need to  
9 communicate Hydro's approach to avoided costing because  
10 that is fundamental to the way the rates are set.

11 Q. Okay. Now after the pricing issues  
12 then the next one down in priority says, dealing fairly  
13 with the various NUG players.

14 Is it fair to read that as a concern  
15 amongst the industry with respect to fairness, or is  
16 that not fair?

17 A. I don't think that's fair.

18 Q. No? If we read the whole report we  
19 wouldn't get that sense?

20 A. I didn't recall that to be the sense  
21 of what problem is. The way I read that, it's one of  
22 the important things that they are looking for Hydro to  
23 do, to deal with fairly. It's not that we are not  
24 doing that. It's that they want to see that that  
25 continues.

1 Q. Okay. I am going to see if I can do  
2 this in the five minutes left. Hopefully I can.

3 When you make your price offer, it's a  
4 dollar figure, right? It's not a rate per  
5 kilowatthour, it's a total number; isn't that right?

6 A. Typically it's in a rate number.

7 THE CHAIRMAN: I'm sorry?

8 MR. VYROSTKO: It's in a rate, cents per  
9 kilowatthour.

10 THE CHAIRMAN: Rate.

11 MR. SHEPHERD: Q. But the basis of it is  
12 a net present value figure that you have calculated  
13 which is the number of dollars that you can pay for all  
14 of the production from that facility over the life;  
15 right?

16 MR. VYROSTKO: A. Well, we have to  
17 determine from our perspective first, what is the value  
18 of the project to us, to Ontario Hydro. There is a  
19 total value over the 20 years or 30 years, whatever  
20 that contract is, and then that's brought to a cents  
21 per kilowatthour.

22 Q. Let's say your number, your avoided  
23 cost number for a particular project is \$300 million,  
24 just for argument's sake, and your offer works out to  
25 \$275 million, your first offer, okay? Those aren't

1 unreasonable numbers?

2 A. I can't say whether they are  
3 reasonable or unreasonable. It again depends on the  
4 project. So, if that's the example you want to use, we  
5 will use that example.

6 Q. The ratio between the offer and the  
7 avoided cost is not out of line with what you in fact  
8 do sometimes; right?

9 A. In fact sometimes that would be a  
10 ratio.

11 Q. Okay. When you go to the developer  
12 you tell them that that's your first offer and you are  
13 willing to negotiate?

14 A. We would say something to that  
15 effect.

16 Q. Okay. Now, what sort of things can  
17 the developer say to you to make you change that  
18 number? What is the developer's leverage?

19 A. It depends on where the developer is  
20 coming from. He can turn around and say I accept the  
21 deal.

22 Q. Let's put that example aside.

23 A. I think that's a real example.

24 Q. Okay. But aside from that, a  
25 developer wants something more than 275.

1 A. So he said, I can't do the project  
2 for that.

3 Q. Okay. The developer doesn't know the  
4 \$300 million number; right? You never tell the  
5 developer that?

6 A. No, and I don't know what his return  
7 is either.

8 Q. So, the developer says to you, can't  
9 do it for 275 million, what do you do?

10 A. I would ask him to now take a look at  
11 that project and see whether in fact -- well, the  
12 question I would ask is whether he can do it for 275,  
13 and if the developer says I can't, then I would ask if  
14 he can tell me what he can do it for.

15 Q. So he says 350.

16 A. Right.

17 Q. Now what do you do?

18 A. I say we can't do it for 350. And so  
19 then we would sit down and we would look at -- if he is  
20 prepared to go further, if he feels there is enough  
21 variance in our first offer and his first offer that he  
22 believes he can work through it, and of course we would  
23 by that time know whether we can work through it, we  
24 would sit down and start looking at how we can make  
25 that project happen for the dollars that that project

1 is worth.

2 Q. Okay. We are going to talk a little  
3 bit later about optimizing the project, changing the  
4 project to make it work. But right now we are still  
5 within avoided cost, right, so you should be willing to  
6 go another \$25 million if it takes that to make the  
7 project work; right?

8 A. Yes.

9 Q. But I guess what I am trying to  
10 figure out is, is this just horsetrading here? You say  
11 one number, the developer says another number and you  
12 glare at each other until you compromise?

13 A. No. In fact, as I suggested before,  
14 we use our own spreadsheet based on information that we  
15 have available to us on industry standards, typical  
16 types of costs associated with projects like that, and  
17 we would do our own modelling. If our modelling, for  
18 instance, said that that project can come in at \$350  
19 million as you suggest, and we would probably be  
20 suggesting to the proponent that we don't think that  
21 that project can in fact meet our avoided costs.

22 Q. I presume, correct me if I am wrong,  
23 I presume that your modelling has already said that it  
24 will come in at 275; right? That's why you made that  
25 offer.



1                   A. Well, the modelling would tell us the  
2                   general area that that project can come in at. And  
3                   what our model will tell us is that if the 300 million,  
4                   going back to 300 million, if the model says if he has  
5                   any variances, that \$300 million, we know that that's  
6                   the absolute maximum, we can that take that 275, see  
7                   what can be done, let's say, with capital costs, if  
8                   capital costs is one of the factors, or we can look at  
9                   the financing, for instance, in our model we use 11 per  
10                  cent or whatever it might be, and we would be talking  
11                  about some of the critical elements and then go back to  
12                  the proponent and see whether in fact there are some of  
13                  those areas that that proponent can do something with.  
14                  And if the proponent can't make changes to that, then  
15                  our model can't do anything either because we know its  
16                  limit is \$300 million.

17                 Q. Mr. Chairman, I just have one more  
18                 question today.

19                 If the developer comes in with a counter  
20                 offer, if you like, at \$300 million or less, isn't it  
21                 correct, Mr. Vyrostkco, that what you do is require the  
22                 developer to prove it with financial disclosure or you  
23                 won't agree to it?

24                 A. If he comes in at avoided cost or  
25                 below?

1 Q. Yes.

2 A. No.

3 Q. So, if the developer comes in at 300,  
4 regardless of whether you have offered 275, 300 is it,  
5 you are done?

6 MR. B. CAMPBELL: This is at the end of  
7 whatever negotiation process has taken place, I assume.  
8 That's what we are talking about here.

9 MR. SHEPHERD: No.

10 MR. VYROSTKO: You talking about the  
11 counter proposal, the first counter proposal?

12 MR. SHEPHERD: Q. I am talking about the  
13 first counter proposal.

14 MR. VYROSTKO: A. I may or may not,  
15 depending on the project.

16 MR. SHEPHERD: Thank you.

17 THE CHAIRMAN: We are adjourned until  
18 tomorrow morning at ten o'clock.

19 THE REGISTRAR: This will hearing will  
20 adjourn until ten o'clock tomorrow morning.

21 ---Whereupon the hearing was adjourned at 5:03 p.m. to  
22 be resumed on Tuesday, October 8, 1991, at 10:00  
a.m.

23

24

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